FINAL REPORT:
FOCUSED MANAGEMENT AUDIT OF BIG RIVERS ELECTRIC CORPORATION

PREPARED FOR:
KENTUCKY PUBLIC SERVICE COMMISSION

PUBLIC VERSION

OCTOBER 6, 2015

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Focused Management Audit of
Big Rivers Electric Corporation
For the Kentucky Public Service Commission
Concentric Audit Report

I. EXECUTIVE SUMMARY

Big Rivers Electric Corporation ("Big Rivers" or the "Company") has experienced a precipitous decline in load requirements. The loss of the load of two large smelters left Big Rivers with approximately 850 MW of excess generation. In anticipation of the possibility of this development, Big Rivers finalized a Load Concentration Analysis and Mitigation Plan ("Mitigation Plan") in 2012 designed to mitigate the rate impact of the loss of the smelter load to its three member cooperatives. A focused management audit of Big Rivers was ordered by the Kentucky Public Service Commission ("Commission") in 2014, and required a review of the steps that Big Rivers has undertaken and should undertake to mitigate any further financial impact relating to the loss of the smelter loads.

Based on a focused management audit of Big Rivers conducted by Concentric Energy Advisors, Inc. ("Concentric"), Concentric has concluded that Big Rivers has largely followed the Mitigation Plan in a step-wise manner, consistent with the plan, which identified both short-term and long-term strategies to mitigate the loss of load.[1]

Going forward, Big Rivers must continue to evaluate the effectiveness of the Mitigation Plan, considering current market conditions, future expected market conditions, and its core mission. The consideration of future strategies must be consistent with Big Rivers' mission, which is to safely deliver competitive and reliable wholesale power and cost-effective shared services desired by its members. In this context, Concentric makes the following recommendations:

- Big Rivers should consider adding a member with energy expertise to the Board of Directors;
- Big Rivers should pursue discussions with Lenders and the Commission to address restrictions around the sale of Coleman and commence a study on the strategic options for the facility;
- Big Rivers should maintain the optionality of Wilson at this time and revisit strategic options for the facility in the next two to three years;
- Big Rivers should continue to develop in-house expertise in price forecasting and Midcontinent Independent System Operator ("MISO") market knowledge to develop more robust price forecasts, to the extent that expertise supports Big Rivers' mission and core business; and
- Big Rivers should continue to pursue increased sales to existing load and sales to new customers and load, including new members.

[1] Concentric's conclusions are set forth in this public version of its audit report, as well as in a confidential version provided to the Kentucky Public Service Commission that contains proprietary information.

II. LETTER OF ACKNOWLEDGEMENT

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270-827-2561
www.bigrivers.com

September 29, 2015

Daryl E. Newby
Kentucky Public Service Commission
211 Sower Boulevard, P.O. Box 615
Frankfort, Kentucky 40602-0615

RE: Focused Management Audit of Big Rivers Electric Corporation

Dear Mr. Newby:

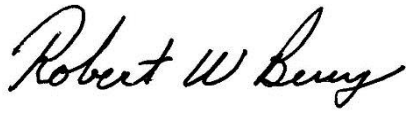
We at Big Rivers Electric Corporation appreciate the opportunity to provide comments on the focused review by the Kentucky Public Service Commission staff and Concentric Energy Advisors, Inc. of the company's plans and efforts to mitigate the impact on its cooperative members of the loss of load experienced on the Big Rivers system over the past two years. As you know, we embraced this process as an opportunity to have our efforts assessed by independent, experts whose fresh eyes and new ideas might improve what we are doing now and what we plan to do in the future to mitigate the aluminum smelters' departure. We are pleased that Concentric's independent analysis has validated a number of steps Big Rivers has taken to implement its load loss mitigation plan, and has supported the degree of confidence the Commission has shown in Big Rivers' ability to deal with the issues created by the departure of the two aluminum smelter loads from its system.

We found the Concentric representatives and the Commission's staff to be very competent and highly professional in the conduct of their work. While Big Rivers does not agree with everything in the Concentric report, we look forward to the opportunity to thoroughly assess and implement the action plan developed by Concentric. In fact, we are already acting on some of the suggestions we received from Concentric during its review.

Big Rivers' load loss mitigation plan is not a project; rather, it is a fundamental component of Big Rivers' overall operations and strategic planning activities. We are committed to pursuing Big

Rivers' core business in a manner that keeps our electric rates as low as possible and maximizes the value of our assets to our members.

Sincerely yours,



Robert W. Berry
President and CEO
Big Rivers Electric Corporation

III. INTRODUCTION

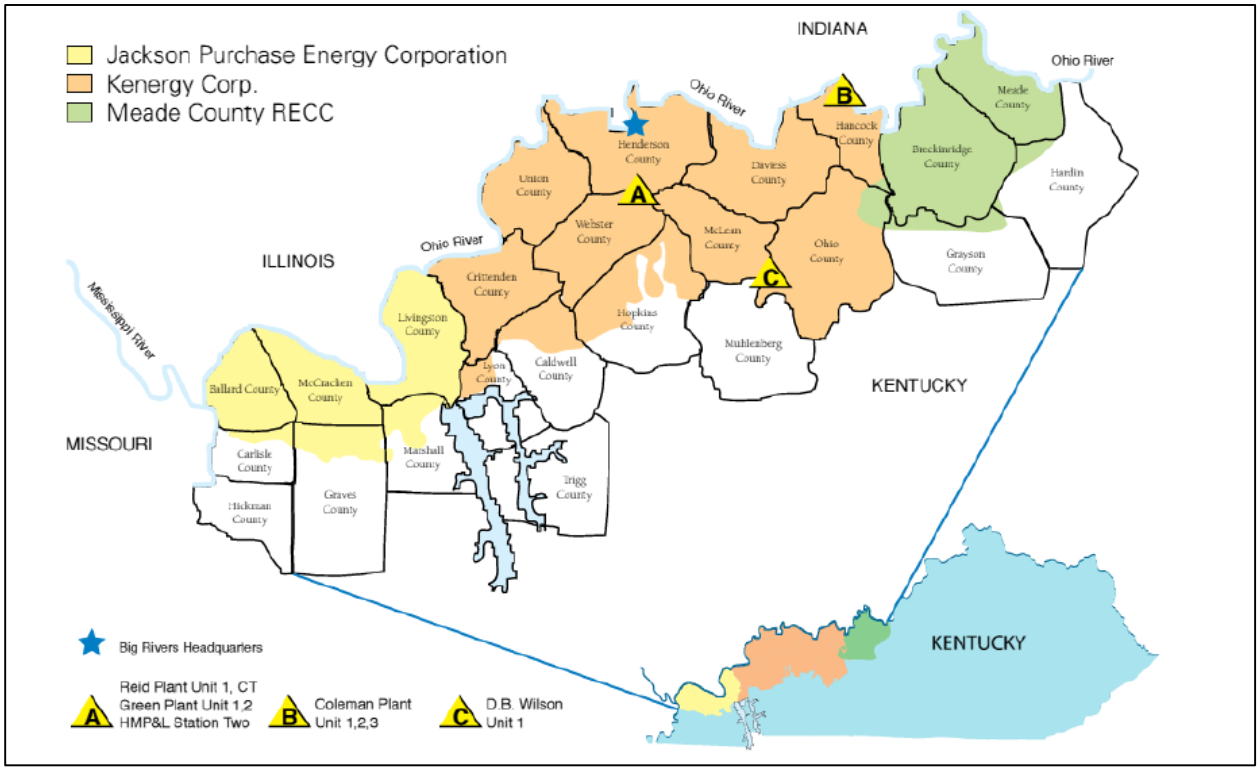
A. About Big Rivers

Big Rivers is a member-owned, not-for-profit, rural electric generation and transmission cooperative ("G&T") headquartered in Henderson, Kentucky and incorporated in 1961 pursuant to KRS Chapter 279. Big Rivers provides wholesale electric power and services to member-owner distribution cooperatives across 22 counties in western Kentucky. The member cooperatives are Jackson Purchase Energy Corporation ("Jackson Purchase"), Kenergy Corp. ("Kenergy"), and Meade County Rural Electric Cooperative Corporation ("Meade County"). The three member-owners of Big Rivers collectively serve approximately 114,000 members. In 2014, Big Rivers had energy sales of 9,610,026 megawatt-hours ("MWh"), operating revenues of approximately $505.86 million and net margins of $32.67million.[2] Big Rivers has approximately 518 full-time employees.

Big Rivers owns and operates 1,444 megawatt ("MW") of generating capacity, including the Robert A. Reid Plant (130 MW), the Kenneth C. Coleman Plant (443 MW), the Robert D. Green Plant (454 MW) and the D. B. Wilson Plant (417 MW). The location of Big Rivers' generating facilities and member cooperative service territories is shown in Figure 1. In addition, Big Rivers contracts for up to 375 MW of generating capacity from Henderson Municipal Power and Light Station Two and Southeastern Power Administration.

2 Big Rivers Financial Report December 2014.

FIGURE 1: BIG RIVERS SERVICE TERRITORY[3]



Big Rivers joined MISO in December 2009 and fully integrated its transmission system, consisting of 1,298-miles of transmission lines, into MISO in December 2010.

B. Loss of Smelters

For much of its existence, Big Rivers has supplied electricity through a full requirements contract with Kenergy (and Kenergy's predecessors, Green River Rural Electric Cooperative Corporation and Henderson-Union Rural Electric Cooperative) to two aluminum smelters now owned by Century Aluminum ("Century") and served by Kenergy: (1) Century Aluminum of Kentucky General Partnership ("Century Hawesville") located in Hawesville, Kentucky; and (2) Century Aluminum Sebree LLC ("Century Sebree") located in Robards, Kentucky.[4] Due to the nature of the smelting process, the smelters require a significant quantity of firm, reliable power in the amount of 482 MW at Century Hawesville and 385 MW at Century Sebree. This power is consumed at both facilities on a round-the-clock basis at a 98 percent load factor. The annual cost of electricity accounts for almost 40 percent and 35 percent of the cost to produce aluminum at Century Hawesville and Century Sebree, respectively.

In 1998, in conjunction with a reorganization plan allowing Big Rivers to emerge from bankruptcy, Big Rivers leased its generating assets for 25 years to Western Kentucky Energy Corp., an unregulated

[3] Big Rivers Load Concentration Analysis and Mitigation Plan, June 2012.

[4] On June 1, 2013, Century Sebree acquired the aluminum smelting assets owned by Alcan Primary Products ("Alcan").

affiliate of Louisville Gas & Electric Company ("LG&E"). The reorganization plan also included an agreement for Big Rivers to purchase certain quantities of power from LG&E's energy marketing subsidiary to supply all of Big Rivers' distribution cooperatives' retail customers, except Century Sebree and Century Hawesville. As part of the reorganization and lease of Big Rivers' generating assets, Big Rivers reduced rates to the member cooperatives as approved by the Commission in Case No. 1997-00204.

Between 1998 and July 2009, approximately 70 percent of the power consumed by Century was purchased by Kenergy (or its predecessor) directly from LG&E's energy marketing subsidiary, with the remaining 30 percent secured by Kenergy in the wholesale power market at market-based prices for resale to Century. The Kenergy power contracts with the two smelters were set to expire at the end of 2010 and 2011, respectively, with 100 percent of Century's power requirements purchased by Kenergy at market prices after 2010 and 2011.

By late 2007, the market-based power prices paid by Century were in the range of $50 to $60 MWh, whereas the power being provided by Kenergy was in the range of $25 MWh. In an effort to lower the price of its purchased power, Century actively supported Big Rivers' efforts to reacquire control of its generating facilities by terminating the 1998 lease agreement and then contracting with Kenergy to have Big Rivers supply the majority of Century's power requirements. That transaction, known as the "Unwind Transaction," was approved by the Commission on March 6, 2009.

According to the terms of the 2009 power supply contracts executed as part of the Unwind Transaction under which the smelters received power from Big Rivers through Kenergy, subject to certain limitations, the smelters had the right to terminate their agreements upon providing Big Rivers a one-year notice of termination for closure. To be effective, any Notice of Termination for Closure had to be accompanied by a certificate of the president of the smelter that included a representation and warranty that it has made a business judgment in good faith to terminate and cease all aluminum smelting at the smelter and has no current intention of recommencing smelting operations at the smelter.[5] On August 20, 2012, Century Hawesville provided Big Rivers its one-year termination for closure notice. The Hawesville smelter represented approximately 40 percent of Big Rivers' native load and 35 percent of Big Rivers' annual revenue. The decision to terminate the Hawesville smelter's power agreement with Big Rivers reduced the demand on Big Rivers' system by approximately 480 MW, the approximate capacity of Big Rivers' Coleman Generating Station.[6] On January 31, 2013, Century Sebree gave its one-year termination for closure notice. The decision to terminate the Sebree smelter's power agreement reduced the demand on Big Rivers' system by approximately 370 MW, or 90 percent of the capacity of the Wilson Generating Station. In recognition of the economic importance of the smelters to both the financial condition of Big Rivers and the economy in western Kentucky, Big Rivers and Kenergy entered into negotiations with Century prior

[5] The 2009 contracts were entered into upon the July 16, 2009 closing of Big Rivers' Unwind Transaction with an unregulated affiliate of Louisville Gas & Electric ("LG&E") whereby Big Rivers re-acquired operational control of its generating plants.

[6] The idling of Big Rivers' Coleman Station was recognized in the 2012-00535 Rate Order.

to and after the termination for closure notices in an attempt to reach agreement on terms and conditions under which the smelters could continue to operate.[7] Big Rivers' objective in the negotiation process was to develop an agreement that allowed the smelters to remain in operation at rates that would not result in any negative impact on its existing customers. The negotiations took place between Big Rivers and Century over a period of two years from the time of notification of both Century Hawesville and Century Sebree to the time that the agreements were approved by the Commission.

These negotiations were reportedly contentious. Big Rivers was focused on minimizing the impact on its remaining customers of any rate reduction to the smelters that would have been required to allow for the continued operation of the smelters. Conversely, the Century smelters were focused on their need to lower their total energy costs and maintain their competitive position in the market. Big Rivers' management considered several options to retain the smelters as customers, and discussed these options with the Big Rivers Board of Directors on numerous occasions.[8] Options considered included: (1) eliminating the smelter's Times Interest Earned Ratio ("TIER") adjustment charge, the Smelter surcharge, and the $0.25 adder to the large industrial rate; and (2) allowing the smelters to purchase power at rates based on the wholesale power market.[9] The status of the on-going negotiations between Big Rivers and Century was communicated to the member Boards by Big Rivers' senior staff and the various directors from the member cooperatives that serve on Big Rivers' Board.

Due to the importance of the smelters to the local economy, the negotiations between Big Rivers and Century attracted significant attention. Century publicly promoted legislative action that would allow the Century Hawesville facility to buy power directly from the wholesale market. In response, Kentucky Legislators put forth a very limited retail access bill, filed in both the House and the Senate that would allow for this power purchase arrangement. Meetings between Century and a group of Western Kentucky legislators known as the "smelter legislative caucus" took place on numerous occasions, along with representatives of the Commission and Big Rivers and encouraged dialogue between parties.

Ultimately, Big Rivers and Century agreed on a series of contracts that allowed the smelters to purchase power from Kenergy, which acquired the power directly from the wholesale market based on wholesale power market prices, with Big Rivers initially acting as Kenergy's Market Participant in MISO. A series of agreements ("Transaction Agreements") were reached for service to the Hawesville smelter and were approved by the Commission in Case No. 2013-00221 in August 2013. Similar agreements were negotiated with the Century Sebree smelter and were approved by the Commission in Case No. 2013-00413 in January 2014.

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7 In addition to economic realities, there were political interests in ensuring that the smelters continued to operate.

8 See Board Meeting Minutes, June 21, 2012.

9 The purpose of the Smelter TIER Adjustment Mechanism was to allow Big Rivers to charge the Smelters up to an additional $14.2 million annually as a means of ensuring that it is able to meet the TIER requirements set out in its loan covenants.

As a result of the decisions by Century to terminate their 2009 contracts, Big Rivers no longer had an immediate market for the approximately 850 MW of power that was sold to the smelters. In Docket No. 2013-00199, Big Rivers proposed to idle the Wilson and Coleman facilities. Ultimately, Big Rivers was able to sell a portion of the output from the Wilson facility under a bilateral contract through December 2015. Big Rivers pursued the idling of the Coleman facility as opposed to one of the other Big Rivers generating facilities based on Coleman's age, its need for higher quality fuel, and its production costs being higher than Big Rivers' other generating facilities.

Big Rivers submitted its plan to idle the Coleman Station in accordance with MISO tariff requirements to ensure that the idling of the facility would not have an adverse impact on system reliability. MISO determined that in order for Century Hawesville to operate at a firm load of 482 MW, Coleman Station would be required to remain available to generate power when needed for reliability purposes. As a result, MISO designated Coleman Station as a System Support Resource ("SSR") and placed it on must-run status.[10] The resulting costs associated with SSR status were paid for by Century Hawesville under the terms of the Transaction Agreements through May 30, 2014. As part of the Transaction Agreements, Century Hawesville was obligated to pay for all transmission service needed to serve its load at an estimated cost of $7.7 million annually, which was credited against SSR costs through May 30, 2014.

In order to avoid indefinitely paying the additional costs associated with the must-run status of the Coleman Station, Century Hawesville planned for the installation of capacitors and protective relays at its facility to allow it to safely withstand some level of interruption to its power supply to be operational by May 30, 2014, at which time Big Rivers and Century would request MISO to terminate the SSR agreement. The installation of the equipment at the Hawesville facility was completed and the SSR agreement terminated in May 2014. Big Rivers' Coleman Station is now idled.

C. Development of Load Concentration Analysis and Mitigation Plan

Shortly after the Unwind Transaction in 2009, Big Rivers began to develop the Mitigation Plan in August 2011 designed to mitigate the impacts of: (1) a potentially dramatic reduction in its total system load from approximately 1,500 MW to approximately 650 MW; (2) a resulting approximately 65 percent reduction in Big Rivers' annual revenues; and (3) excess capacity in the Company's then current resource portfolio.[11]

The Mitigation Plan, finalized in May 2012, established parameters and specific actions that Big Rivers planned to undertake to mitigate the financial impact of no longer supplying the power required to serve the loads of the Century Hawesville and Century Sebree plants. As a result of Century Hawesville's notice of termination for closure in August 2012, Big Rivers began to implement

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[10] An SSR is a resource that is required to continue to operate for system reliability purposes. SSR agreements between generating resources and MISO are filed with the Federal Energy Regulatory Commission and specify the terms and conditions of the service, including the compensation to be provided to the resource for its continued operation.

[11] This includes the 443 MW Kenneth J. Coleman Plant which is currently idled.

the Mitigation Plan, which was submitted under petition for confidential treatment to the Commission in Big Rivers' 2012 Environmental Compliance Plan in Case No. 2012-00063. The key steps to be undertaken by Big Rivers under the Mitigation Plan were to:

1. Seek rate increases to address revenue shortfalls;[12]
2. Market excess power when the market price exceeds its marginal generation cost;
3. Evaluate possible forward bilateral sales agreements, wholesale power contracts and participation in capacity markets;
4. Expand existing load and attract new industrial load;
5. Attract new members for Big Rivers' system;
6. Idle or reduce generation when the market price does not support the cost of generation;
7. Evaluate the Sale of generating facility(s); and
8. Evaluate and pursue as appropriate a merger or acquisition.

In its orders in Rate Case Nos. 2012-00535 and 2013-00199, the Commission acknowledged the concerns expressed by interveners as to both the magnitude of Big Rivers' requested increase and the appropriateness of asking the remaining customers on the Big Rivers system to pay the fixed costs of capacity that was no longer required to serve customers. In its Orders, the Commission required the deferral of depreciation associated with the Wilson and Coleman generating facilities to mitigate the size of the rate increase while allowing Big Rivers to avoid a default on its debts and to continue to provide safe and reliable electric service to the customers served by its member-owners. Furthermore, the Commission found it:

> ". . . reasonable to afford Big Rivers the time to pursue its mitigation strategies, including operational changes to reduce costs, seeking to acquire replacement load, increasing off-system sales, and attempting to sell or lease its generating facilities."[13]

IV. COMMISSION ORDERED MANAGEMENT AUDIT

In its Order in Case No. 2013-00199, the Commission required a focused management audit of Big Rivers and its efforts to mitigate the impact of the loss of the smelter loads. Specifically, the Commission required that the audit review the strategic planning, management, and decision-making of Big Rivers relating to the mitigation efforts and the steps that Big Rivers had undertaken or should undertake to mitigate any further financial impact relating to the loss of the smelter loads.

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[12] Big Rivers filed for increased rates in Case Nos. 2012-00535 (Century Hawesville) and 2013-00199 (Century Sebree) which resulted in rate increases of $54.2 million and $36.2 million, respectively.

[13] KYPSC Order Case No. 2012-00535, October 20, 2013, pg. 20.

Based on all of these factors, the Commission issued a Request for Proposals ("RFP") on November 19, 2014, seeking an independent consultant to perform a focused management audit of Big Rivers' efforts to mitigate the impact of the loss of the smelter loads.

The RFP issued by the Commission contained a scope of work for a focused review of the Mitigation Plan which included, but was not limited to, the following task areas:

1. Review and analyze the utility's Mitigation Plan that was submitted to the Commission in Big Rivers' 2012 Environmental Compliance Plan case, in Case No. 2012-00063;

2. Review and analyze the reasonableness of each step taken by the utility to date under its Mitigation Plan to mitigate the negative financial impact relating to the loss of the smelter load. The analysis was to address whether the utility had followed its Mitigation Plan, and if it had deviated from its plan, the reasonableness of deviating from the plan;

3. Review and analyze the reasonableness of the utility's Mitigation Plan going forward, including, but not limited to:

    i. The ability of Big Rivers' coal-fired generating fleet to be competitive and to make sales of capacity and energy in the wholesale markets and offset Big Rivers' fixed costs;

    ii. The potential sale or lease of one or more of Big Rivers' coal-fired generating units;

    iii. Whether environmental compliance was adequately considered in the Mitigation Plan;

    iv. The potential for debt restructuring and/or refinancing; and

    v. The requirements of and opportunities for Big Rivers as a member of MISO.

The Commission stated in the RFP that the evaluation phase of the project would take approximately five months to complete and would culminate in the publication of a final report and a Management Audit Action Plan ("MAAP") report. The Commission projected that the project would begin on or about November 19, 2014.

After a competitive bidding process, Concentric was selected to perform the management audit and commenced work in later November 2014.

V. CONCENTRIC'S APPROACH

Unlike a traditional management audit which is generally broad-based with a more standard scope, this audit was structured to be a targeted assessment of the Company's Mitigation Plan to address its loss of load. Both assessing the actions taken in implementing the plan (the "Backward-Looking Analysis") and the reasonableness of the plan going forward (the "Forward-Looking Analysis"),

including identifying opportunities to improve the plan, are critical to continuing to mitigate the impact of the smelter contract terminations on member rates.

Concentric's scope of work for the Backward-Looking Analysis included: (1) a thorough review of the Mitigation Plan; (2) an assessment of the reasonableness of each step taken under the Mitigation Plan and whether Big Rivers followed the Mitigation Plan; and (3) the identification of any deviations from the Mitigation Plan and the reasonableness of these deviations. The scope of work for the Forward-Looking Analysis included: (1) an assessment of the ability of Big Rivers' coal-fired generating fleet to be competitive in wholesale markets; (2) an assessment of strategies for maximizing any available opportunity to sell Big Rivers' excess energy and capacity; (3) a review of environmental compliance plans; (4) an evaluation of the potential for the sale or lease of one or more of Big Rivers' coal units; (5) a review of Big Rivers' existing debt instruments; (6) a review of MISO requirements, opportunities and emerging rules that could impact the competitiveness of the Big Rivers fleet; and (7) an assessment of the future context for Mitigation Plan execution.

Concentric based its approach to the technical and strategic nature of the audit on a team with the expertise necessary to not only audit Big Rivers' actions and plans, but to assess the value of those plans going forward including identifying possible enhancements to the plan.

Concentric's work plan included the following:

- Obtain pertinent and relevant information from Big Rivers through data requests;
- Conduct interviews with Big Rivers Management, Big Rivers Board of Directors, Kentucky Industrial Utility Customers ("KIUC"), International Brotherhood of Electrical Workers ("IBEW"), Smelter Legislative Caucus, Century, Sierra Club, and member cooperatives;
- Conduct a thorough analysis of information provided by Big Rivers in addition to publically available information;
- Provide an unbiased and objective assessment of Big Rivers' actions in implementing the Mitigation Plan and the reasonableness of the Mitigation Plan going forward, including recommendations and action plans for each recommendation;
- Review preliminary findings with the Commission and Big Rivers in a draft report to make sure that the findings are accurate and reasonable; and
- Prepare a detailed final report and action plan for Big Rivers to implement.

The remainder of this report provides Concentric's findings pertaining to the actions of Big Rivers in implementing the Mitigation Plan, any deviations from the plan and the reasons for these deviations and the reasonableness of the Mitigation Plan going forward. Where appropriate, Concentric provides recommendations for corrective actions.

A glossary of relevant industry terms is contained in Appendix A.

VI. STRATEGIC CONSIDERATIONS

A. Big Rivers Mission

FINDING 1: BIG RIVERS' MISSION IS VERY SPECIFIC AND FOCUSED ON SERVING ITS MEMBERS BY MINIMIZING COSTS AND RISKS. OPERATING WITH A SIGNIFICANT AMOUNT OF GENERATION IN EXCESS OF CUSTOMER DEMAND IS NOT CONSISTENT WITH BIG RIVERS' MISSION. FUTURE COURSES OF ACTION TO ADDRESS THE LOSS OF THE SMELTER LOAD SHOULD BE CONSISTENT WITH BIG RIVERS' STATED MISSION.

A guiding principle for the consideration of strategies to be pursued to further mitigate the loss of the smelter load should logically be based on whether they are consistent with Big Rivers' stated mission and its guiding principle, or "North Star," as outlined in Big Rivers' 2015 Strategic Plan. Big Rivers describes its mission as "to safely deliver competitive and reliable wholesale power and cost-effective shared services desired by our Member-Owners." Big Rivers' describes its North Star as the cost per kilowatt-hour ("KWh") of the total member load, and states that it will "manage the cost per KWh, considering risks and benefits, always striving to keep costs as low as possible while still meeting the members' service requirements and maintaining Big Rivers' financial viability."[14]

In considering the reasonableness of the Mitigation Plan going forward, it is critical for Big Rivers to continue to follow strategies that are consistent with its mission to minimize costs and risks for member cooperatives. Big Rivers is an electric cooperative that has historically sized its generation supply portfolio to match the load of its member cooperatives, allowing for future load growth. However, the loss of the smelter load, which was beyond the control of Big Rivers, immediately placed Big Rivers in the challenging position of having a significant amount of generation in excess of customer demand, resulting in over 800 MW of uncontracted generation. Marketing excess generation requires robust market modeling, analysis and risk management tools, as well as deep expertise in the area of wholesale power market operations. While Big Rivers continues to make strides in developing this expertise in-house, Big Rivers should continue to operate consistent with satisfying its mission, which is to safely deliver competitive and reliable wholesale power and cost-effective shared services desired by its members. Planning to operate excess generating capacity intended to serve member load on a long-term basis without long-term contracts is inconsistent with this mission. Big Rivers should continue to pursue solutions to mitigate, and ultimately eliminate, its excess capacity.

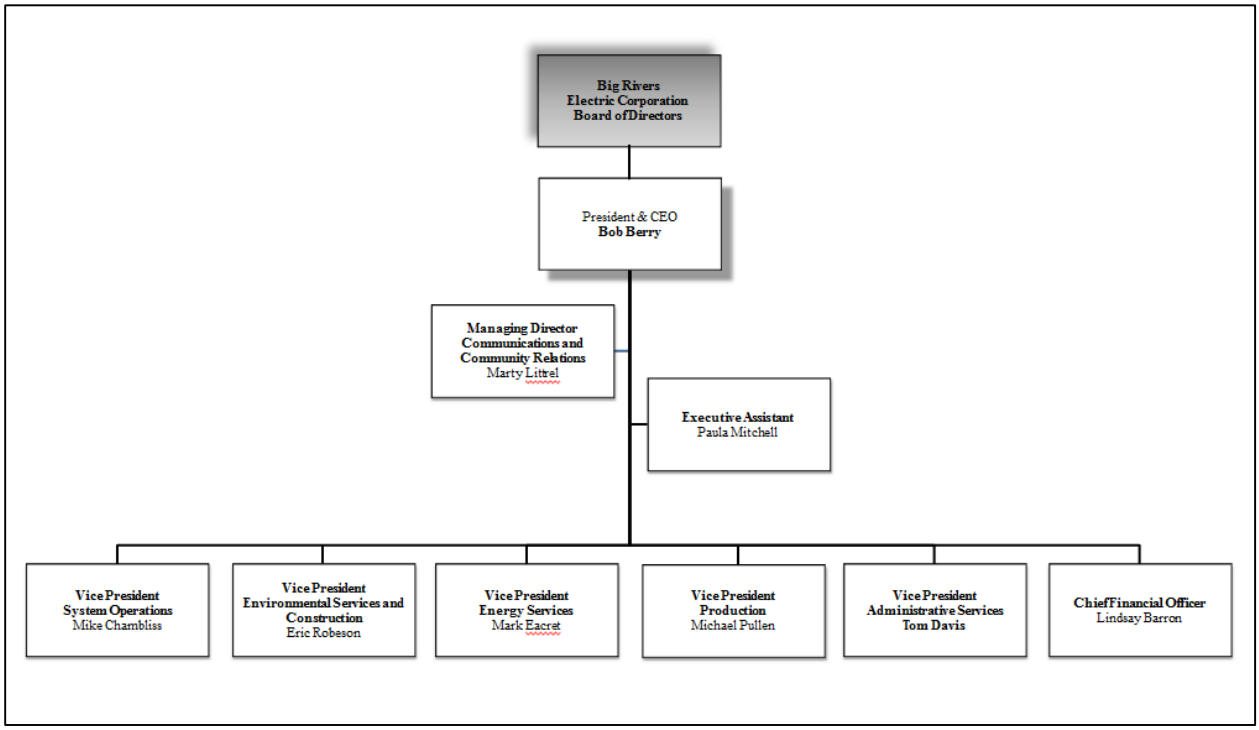
[14] Big Rivers' 2015 Strategic Plan.

B. Big Rivers' Management

FINDING 2: RECENT CHANGES IN BIG RIVERS' EXECUTIVE TEAM APPEAR TO HAVE HAD NO ADVERSE IMPACTS ON THE EXECUTION OF THE MITIGATION PLAN.

Big Rivers' current organizational structure, consistent with the structure in place at the time of the development of the Mitigation Plan, is shown in Figure 2. The President and Chief Executive Officer ("CEO") is supported by six direct reports that manage the day-to-day operations of Big Rivers and comprise Big Rivers' management team.

FIGURE 2: BIG RIVERS' ORGANIZATIONAL STRUCTURE



Big Rivers' management team is comprised of the following:

- **Bob Berry – President and CEO:** Mr. Berry graduated from the University of Kentucky Community College system with an Associate degree in Mechanical Engineering Technology and Mid-Continent University with a Bachelor of Science in Business Management. He was employed by Big Rivers from 1981 to 1998 and served in various maintenance positions such as Superintendent of Maintenance and Maintenance Manager. In 1998, he was employed by Western Kentucky Energy and served in various positions such as Maintenance Manager, Plant Manager and General Manager until the Unwind transaction closed in July 2009, at which time he assumed the position of Vice President – Production, until February 2013 when he was promoted to Chief Operating Officer. Mr. Berry assumed his current position July 2014.

- **Lindsay Barron – Chief Financial Officer:** Ms. Barron received a Bachelor of Science in Accounting in 2001 and a Master of Business Administration degree in 2003 from the University of Southern Indiana. She also holds a master certificate in Human Resource Management from Villanova University. Ms. Barron began her career with Big Rivers in 1998 and worked in accounting, purchasing, and energy services before accepting a position at Vectren Corporation in 2005. While at Vectren, she worked in the energy services and MISO settlement groups until accepting the Manager of Market Research and Analysis position in 2007. Ms. Barron returned to Big Rivers in 2010 as the Director Risk Management and Strategic Planning; she transitioned to the Energy Services Department in June 2012; and she assumed her current role as Chief Financial Officer in October 2014. Ms. Barron is a certified public accountant ("CPA"), certified in financial management ("CFM"), and certified business resilience manager ("CBRM").

- **Mike Chambliss – Vice President System Operations:** Mr. Chambliss graduated from the University of Southern Indiana with a Bachelor of Science in Business Administration and a Master of Science in Management from Oakland City University. In his 35-year career at Vectren Corporation, he served in various positions in the operations area including roles in the transmission and energy delivery division of the organization along with serving on multiple Midwest ISO (MISO) transmission committees. Mr. Chambliss served as a District Manager, General Foreman of Substation Construction and Maintenance, Supervisor of Protective Relays and Gas Turbines, Electrical Maintenance Foreman and Director Network Operations. Mr. Chambliss assumed his current position as Vice President System Operations in January 2014.

- **Eric Robeson – Vice President Environmental Services and Construction:** Mr. Robeson received a Bachelor of Science in Mechanical Engineering from Rose Hulman Institute of Technology in 1977, and an MBA from Ball State University. He initially worked as a construction engineer for Fluor Engineers and Constructors in Saudi Arabia on various gas projects. In 1980, he joined Southern Indiana Gas and Electric Company (Vectren) where he served in the positions of Director of Generation Planning, Director of Coal Mining and Utility Infrastructure Services, and Culley Plant Manager. While at Vectren, he also served as project manager for corporate compliance with the Clean Air Act Amendments, and directed outside engineering and construction firms performing compliance studies, selection of the flue gas scrubber vendor, and construction management, along with other corporate construction activities. Eric joined Big Rivers in May of 2011 as Vice President Plant Construction.

- **Mark Eacret – Vice President Energy Services:** Mr. Eacret graduated from Indiana University – Purdue University at Indianapolis with a Bachelor of Science in Accounting and Indiana University with a Master of Business Administration with a concentration in Finance. He was employed by Public Service Company of Indiana/PSIEnergy/Cinergy from 1980 to 1999. From 1980 to 1991, he held positions of increasing responsibility throughout most areas of the company's accounting function. From 1991 until he left the company in 1999, he worked in the wholesale power function, managing the analytical support for the company's wholesale marketing and trading functions. He moved to Ameren Corp in 1999. During the

first seven years at Ameren, he and his team provided analytical support to the company's marketing and trading functions. In 2007, he assumed the additional responsibility of Controller for Ameren's merchant generation operation, Ameren Energy Resources ("AER"). In 2013, he was named Controller and Vice President of Business Services at AER. Ameren sold its merchant generation function at the end of 2013, and Mr. Eacret moved to Sunflower Electric Power Corp in January 2014 as the Senior Manager of Market Operations and Power Contracts. At Sunflower, he was part of the team that transitioned the company into the Southwest Power Pool Integrated Market. Mr. Eacret assumed his current position with Big Rivers Electric Corporation in April 2015.

- **Michael Pullen – Vice President Production:** Mr. Pullen graduated from the University of Mississippi in 1985 with a Bachelor of Science in Electrical Engineering and Murray State University in 2005 with a Masters of Business Administration. He is a registered Professional Engineer in the State of Illinois. Mr. Pullen worked at Electric Energy, Inc. from 1990 to 2014. He served in a variety of engineering, maintenance, and operation roles including Group Supervisor Maintenance, Manager Systems-Dispatch, Manager, Generation, and Director, Operations. Mr. Pullen also was employed by Ameren Illinois from 2014 to 2015 and served in substation construction management. He assumed his current role with Big Rivers in February 2015.

- **Tom Davis – Vice President Administrative Services:** Mr. Davis graduated from Miami (OH) University with a Bachelor of Science in Business Administration in 1984. Mr. Davis has previous experience in the electric utility industry with American Electric Power during the 1980s and 1990s. He served in a variety of managerial positions including Regional Human Resources Manager during his employment with Weyerhaeuser from 1998-2003. He was employed with Alcoa from 2003-2013 and served as the Global Talent and HR Director in the Engineered Products and Solutions Group. Mr. Davis assumed his current position of Vice President Administrative Services in September 2013.

Since the time that the Mitigation Plan was developed, there has been a significant amount of turnover in the Big Rivers management team. None of the members of the leadership team listed above were in their current positions at the time when the Mitigation Plan was developed. In fact, with the exception of Mr. Berry, the management team at Big Rivers has all spent a significant portion of their careers working for other organizations, with four of the seven members joining Big Rivers from other organizations in the past two years.

On June 20, 2014, Big Rivers announced changes in the senior management of the company. Mr. Mark Bailey, President and CEO for the previous seven years became Special Corporate Advisor and continued in that role until his official retirement later that year. Mr. Bob Berry, who was previously the Chief Operating Officer, became President and CEO. Mr. Berry is a 34 year veteran of Big Rivers. In addition, Ms. Barron assumed the role of CFO from Ms. Billie Richert in October 2014. Mr. Chambliss and Mr. Davis assumed their roles upon retirement of their predecessors. Mr. Eacret and Mr. Pullen filled the roles previously held by Ms. Barron and Mr. Berry.

The turnover of members of the management team appears to be the result of natural attrition and not due to any unusual circumstances. According to interviews with Big Rivers' Board of Directors and the member cooperative executives, the Big Rivers Board of Directors, as well as the member cooperatives, were kept well informed of the management changes and the efforts to fill these positions with qualified individuals.[15]

While this amount of turnover is unusual, it does not appear to have impacted the implementation of the Mitigation Plan. In fact, these changes in the management team have been favorably received by Century as well as the group of Western Kentucky legislators known as the Smelter Legislative Caucus. Century expressed concerns about the tone of the negotiations with Big Rivers during the time of the smelter notification of contract termination for closure.[16] The Smelter Legislative Caucus also stated that negotiations between Big Rivers and Century were contentious following the termination for closure notice.[17] Both Century and the Smelter Legislative Caucus also clearly stated that the change at the CEO level has been a positive step and that the relationship between Big Rivers and Century has been much improved, even though there are still substantive issues between the parties in terms of a long-term solution to the reliability of power supply to the Century Hawesville facility. These issues are related to the local reliability services provided by Coleman when it was still in operation and the need for more clarity on the future status of Coleman in order to allow the Century Hawesville facility to operate reliably at full output.[18]

C. Cost Cutting Measures

In executing the Mitigation Plan, Big Rivers has not limited its focus to just increasing revenues. Big Rivers has also implemented various cost-cutting measures and cost deferral initiatives. These primarily consisted of rescheduling planned generating unit maintenance outages, and to a lesser extent, including transmission maintenance and general and administrative discretionary expenses.[19] In addition, Big Rivers pursued other cost reduction efforts, which included restructuring fuel contracts to lower prices, reducing the cost of employee benefits, decreasing headcount, and paying off pollution control bonds.[20] The focus on cost cutting measures is an appropriate and important component of mitigating the impact on members of the loss of the smelter load.

D. Big Rivers Board of Directors

FINDING 3: WHILE THE BIG RIVERS BOARD OF DIRECTORS IS SKILLED AND WELL-INFORMED ABOUT THE CHALLENGES FACING THE COMPANY DUE TO THE LOSS OF THE SMELTER LOAD, INCLUDING A DIRECTOR WITH ENERGY EXPERTISE COULD ENHANCE THE BOARD.

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15 Interviews with Big Rivers Board Members and Member Cooperatives, February 3, 2015 and February 4, 2015.
16 Interview with Century, March 18, 2015.
17 Interview with Smelter Legislative Caucus, February 3, 2015.
18 Direct Testimony of Michael Early, Century Aluminum of Kentucky, Case No. 2013-00221.
19 Direct Testimony of Billie J. Richert, Case No. 2013-00199, Page 8.
20 Interview with Bob Berry, February 4, 2015.

The Big Rivers Board of Directors is made up of six members, with each member cooperative having two seats on the Big Rivers' Board. There are no term limits, and Board members are compensated at a rate of approximately $16,000/yr. The six members of the Board of Directors are as follows:

- **Dr. James Sills – Meade County:** Dr. Sills graduated from Western KY University in 1955 with a B.S. Degree in Chemistry and Biology and graduated from the University Of Louisville School Of Medicine in 1959. Dr. Sills interned at Springfield City Hospital, Springfield, Ohio, June 1959-July 1960, then went into private solo General Practice in Hardinsburg, Kentucky in July 1960. He became a Certified Specialist in Family Practice in 1964 when the A.A.F.P. was formed and was a charter member. He continued office-based Family Practice until January 1, 2000, and continued to do part-time office practice until January 2011 when he began a Home Call Physician Service. Dr. Sills retired in December 2014 after 54 years of medical practice. He has served on multiple boards over the past 40 years. Dr. Sills has served on the Meade County R.E.C.C. Board since January 19, 1984. He was elected to the Big Rivers' Board in 1995 and served as Chair from 2012-2014. He also earned the NRECA Credentialed Cooperative Director and Board Leadership certifications.

- **Wayne Elliott – Chair, Jackson Purchase:** Mr. Elliott received an Associate in Arts degree from West Kentucky Community and Technical College and has taken several hours at Murray State University. He was involved in L. Elliott & L. Elliott PTRS., a family dairy farming business in McCracken County, from 1975 to 2009 and has been a row crop farmer since 2009. Mr. Elliott has served on the Jackson Purchase Electric Corp. Board of Directors for over 16 years and on the Big Rivers' Board of Directors since 2007. He earned the NRECA Credentialed Cooperative Director certification and serves on several boards in his community.

- **William Denton – Kenergy:** Mr. Denton graduated from the University of Evansville. He was employed by CitiFinancial from 1969 to 2004 and was a self-employed mortgage originator from 2004 to 2014 at which time he retired. Mr. Denton was elected to the Kenergy Board in 1994 and the Big Rivers' Board in 1997. He has also served on the ACES Board since 2002. He earned the NRECA Credentialed Cooperative Director and Board Leadership certifications.

- **Lee Bearden – Jackson Purchase:** Mr. Bearden graduated from high school and entered a banking career in 1960. Mr. Bearden held positions from bank teller to CEO of a small Savings and Loan company and retired from a position of Vice President Real Estate Mortgage Lender from a community bank in December 2012. During the 50 plus years in banking, Mr. Bearden took many college and banking courses at West Kentucky Community Tech College and Murray State University. Mr. Bearden was elected to the Jackson Purchase Energy Corp. Board in 1998; then elected to Big Rivers' Board in 1998 by the Jackson Purchase Energy Corp. Board. Mr. Bearden served as Secretary-Treasurer on Big Rivers' Board for several years. He also earned the NRECA Credentialed Cooperative Director certification.

- **Paul Butler – Secretary-Treasurer, Meade County:** Mr. Butler attended WKU in Bowling Green, Kentucky and Spencerian College in Louisville, Kentucky. Mr. Butler was a member of

the Kentucky Air National Guard from 1966 to 1972. He was a contracted mail carrier from 1964-1971 and was appointed Postmaster of Harned in 1971. He served in this position until 2000 when he retired. Mr. Butler served as President of Kentucky Chapter of National Association of Postmasters (NAPUS) in 1995-1996, National Vice President of NAPUS 1996-1997, Vice President of NAPUS Retirees 2008-2009, and in 2010 was elected President of NAPUS Retirees for two years. Mr. Butler is currently serving as Chairman of the Board for Breckinridge Health Inc., which is the local hospital. He was elected to the Meade Co. RECC Board in 1991, and in 2002, he was elected to serve as a Director of Big Rivers' Board, where he currently holds the position of Secretary-Treasurer. Mr. Butler earned the NRECA Credentialed Cooperative Director certification.

- **Larry Elder – Vice-Chair, Secretary-Treasurer, Kenergy:** Mr. Elder graduated from Owensboro Catholic High School in 1962, attended Brescia College from 1963-1965, and served an electrical apprenticeship 1965-1969. He was employed by Dynalectric Company 1967-2007, where he served as a journeyman wireman, foreman, general foreman, labor superintendent, project manager, and general manager before retiring in 2007 as President - Dynalectric of Kentucky. Continued education includes Project Management Institute at the University of Louisville, completion of Credentialed Cooperative Director and Board Leadership programs through the National Rural Electric Cooperative Association. Mr. Elder currently serves as Vice-Chair on Big Rivers Electric Corporation's Board, is a director of Kenergy Corp., and is a member of the Kentucky Association of Electric Cooperatives' board.

According to the guidelines set forth by the National Rural Electric Cooperative Association, a Board of Directors at a cooperative is a representative body of the members of the cooperative and acts on their behalf. The owners elect the Board and place in its hands the administration of the assets and responsibilities of the cooperative. The Board of Directors has five principal functions:

1. Legal: Ensure the legal right of the cooperative to exist;
2. Trusteeship: Act in the best interest of the members;
3. Planning: Develop programs and carry out plans based on ideals that reflect the thinking of its members, with realistic goals adjusted to the purposes of the cooperative;
4. Resources: Assure the availability of basic resources, including personnel, loan funds, wholesale power, and revenue, according to the cooperative's size and needs; and
5. Control: Monitor operations to assure compliance with Board policy, budgets, member relations, loan covenants, contractual compliance, and long-range planning.

In these five areas, Directors must balance their responsibility to follow policies and procedures for the cooperative with their responsibility to allow the staff to control day-to-day operations.[21] In addition to the above responsibilities, Directors also have certain rights, including access to

[21] Guides for Electric Cooperative Development and Rural Electrification.

management personnel, access to books and records, proper and timely notice of meetings, ability to review meeting minutes, access to outside advice, and ability to hear the prudent judgment of others.

The Big Rivers Board of Directors has a broad and diverse base of experience, and reflects the interests of the local community and the member cooperatives. All of the Board members have served on the Board of Big Rivers since before the development of the Mitigation Plan. Based on Concentric's review of the monthly Board meeting minutes as provided by Big Rivers, the Board of Directors appears to have been very involved in the challenges facing Big Rivers due to the loss of the smelter load and have had regular communications with Big Rivers' management on the actions taken to execute on the Mitigation Plan.

Concentric found the interviewed Board members[22] to have a clear and consistent recollection of Big Rivers' activities related to the execution of the Mitigation Plan. The Board members described their involvement in Big Rivers' activities related to the Mitigation Plan and seem to have provided appropriate direction to the Company through a series of discussions and approvals guided by discussions with the Boards and executives of the member cooperatives.

While the Board members appear to be diligent about educating themselves on industry issues and developments, with one member serving as a member of the Alliance for Cooperative Energy Services Power Marketing ("ACES") Board of Directors (as is Big Rivers' President and CEO), none of the Board members have a background in the energy industry.[23] This is not unusual for electric cooperative Boards of Directors, where the focus has historically been on knowledge about local issues and less on broad energy industry experience. In fact, many electric cooperatives (including the member cooperatives), have requirements contained in their bylaws that board members reside within the cooperative's service territory. This obviously limits the pool of candidates available to sit on Big Rivers' Board of Directors. However, the more recent circumstances facing the organization, the increased reliance on wholesale markets, and the complexities of operating in a competitive market like MISO would benefit from more industry experience on the board to help better understand the challenges ahead and bring additional insights on how Big Rivers might best position itself to mitigate the loss of the smelter load. This could include expertise in the areas of wholesale power market design and operation, risk management, transmission operations and/or energy finance. Adding this experience may require a change in Big Rivers' existing bylaws to allow for an additional board member, or to allow for a board member that does not currently sit on the member cooperatives' Board of Directors.

[22] All Board members except Mr. Bearden were interviewed. Mr. Bearden was unavailable.

[23] ACES Power Marketing provides wholesale electricity and natural gas trading services to its member/owners, which operate in the eastern, southern, and Midwestern US.

E. Risks to Future of Mitigation Plan

FINDING 4: NUMEROUS MARKET RISKS THAT COULD RESULT IN FUTURE RATE INCREASES FOR BIG RIVERS' MEMBERS REQUIRE MORE IMMEDIATE ACTION BY BIG RIVERS TO MITIGATE THE LOSS OF THE SMELTER LOAD.

Big Rivers has been granted three base rate increases since September of 2011, resulting in retail increases to customers of the member cooperatives, on average, of approximately 33%, although increases to the large industrial classes have been higher. These rate increases have been mitigated by the use of the Economic Reserve ("ER") and Rural Economic Reserve ("RER") ("Reserve Funds"), as well as the deferral of annual depreciation expense of $6 million for Coleman and $20 million for Wilson. The ER was established as part of a Member Rate Stability Mechanism ("MRSM") pursuant to the 2009 "unwind" transaction to offset certain fuel and environmental charges to Big Rivers' two customer classes - the Large Industrial customer class and the rural customer class. The RER was established pursuant to the 2009 "unwind" transaction to offset certain fuel and environmental charges to Big Rivers' Rural customer class upon depletion of the ER; however, the RER was expanded in Case No. 2013-00199 to benefit all customers. The MRSM was initially funded by the ER account that was established in the amount of $157 million. Upon the depletion of the ER account to the point where it could no longer fully fund the MRSM credit, the credit would draw on the RER account, which was established in the amount of $60.9 million. In Case No. 2013-00199, the MRSM and RER credits were changed so that, among other things, in addition to offsetting certain fuel and environmental charges, they were also used to fully offset the rate increase awarded in that case. Additionally, Big Rivers was granted the authority to place certain transmission revenues it receives into the ER. The transmission revenues from Century in the amount of approximately $7 million are currently being deposited in the Economic Reserve, which will delay the exhaustion of this fund indefinitely. In Case No. 2014-00134, Big Rivers is proposing to deposit margins from certain wholesale sales contracts into the Economic Reserve. The initial reserve fund deposits will eventually be depleted, leaving only the offset provided by the transmission revenues and the margins from the contracts that are the subject of Case No. 2014-00134, and leading to customers seeing nearly the full effect of fuel and environmental charges and the most recently approved rate increase

In addition, the manner in which Wilson and Coleman's depreciation will be recovered is uncertain at this time. The recovery of the deferred depreciation, and the treatment of further depreciation, has the potential to affect Big Rivers' earning and debt coverage requirements, which in turn could jeopardize Big Rivers' existing indenture and future borrowing ability. This also has the potential to increase member rates.

Finally, energy and capacity market price risk, as well as future environmental compliance and associated cost risk have the potential to increase Big Rivers' costs and rates to its members.

These risks to member rates make the timing of Big Rivers' actions to mitigate the loss of the smelter load critically important. If rates continue to increase, Big Rivers' risks losing opportunities to attract new native load. Big Rivers should continue to aggressively address the loss of the smelter load and mitigate the risk of future rate increases.

VII. BACKWARD-LOOKING ANALYSIS OF THE MITIGATION PLAN

As noted earlier in this report, Concentric's focus in the Backward-Looking Analysis was on understanding the Mitigation Plan through a thorough review of the plan itself as well as relevant Commission Orders and other materials related to the development of the Mitigation Plan. Based on this understanding, Concentric proceeded to assess: (1) whether Big Rivers executed on the strategies outlined in the Mitigation Plan; (2) whether the steps taken in Mitigation Plan execution were reasonable; (3) whether Big Rivers deviated from the Mitigation Plan; and (4) whether any such deviations were reasonable. Concentric conducted this assessment through interviews, documentation review, and research of publically available information.

A. Seek Rate Increases to Address Revenue Shortfalls

FINDING 5: BIG RIVERS HAS ADDRESSED NEAR-TERM REVENUE SHORTFALLS ASSOCIATED WITH THE LOSS OF THE SMELTER LOAD VIA RATE PROCEEDINGS IN THE MANNER SET FORTH IN THE MITIGATION PLAN.

The first step in Big Rivers' Mitigation Plan was to seek rate increases to address the revenue shortfall left by the power supply arrangements made between Big Rivers and Century Hawesville and Century Sebree. On January 15, 2013, Big Rivers requested approval to increase its wholesale electric rates for service to its three member-owner distribution cooperatives. Big Rivers proposed to increase its wholesale electric base rates by $74.5 million, or 21.4 percent, effective February 18, 2013. In its order in Docket No. 2012-00535 dated October 29, 2013, the Commission granted an increase of $54.2 million stating:

> "Under the circumstances presented in this case, the Commission finds that in setting rates, we must balance the interests of both the utility and its ratepayers. In performing this duty, the Commission acknowledges that this excess generating capacity is not a result of any imprudent decisions by Big Rivers, but is a direct result of Big Rivers' actions to reacquire its generating facilities in an effort to keep the smelters operating in western Kentucky.
>
> Having considered all of these factors, the Commission finds it both reasonable and necessary to exclude some costs of the Coleman Station from Big Rivers' rates. It would simply not be fair to require ratepayers to pay all of costs of the excess capacity. Therefore, we will exclude the depreciation expense associated with the Coleman Station from rates at this time, as discussed more fully later in this Order. Further, we find it reasonable to afford Big Rivers the time to pursue its mitigation strategies, including operational changes to reduce costs, seeking to acquire replacement load, increasing off-system sales, and attempting to sell or lease its generating facilities."[24]

On June 28, 2013, Big Rivers requested approval to increase its wholesale electric rates for service to its three member-owner distribution cooperatives. Big Rivers proposed to increase its wholesale

[24] PSC Final Order – CN 2012-00535 October 29, 2015, pg. 19.

electric base rates by $70.4 million, or 26.5 percent, effective July 28, 2013. In its order in Docket No. 2013-00199 dated April 25, 2014, the Commission granted an increase of $36.2 million, which would be offset by Big Rivers' use of Reserve Funds until those funds are exhausted. Regarding the Mitigation Plan, the Commission stated:

> "Concerning the Big Rivers Mitigation Plan, the Commission recognizes that there are many issues to be considered in determining the optimal timing, pricing, terms, and conditions for marketing power and/or selling generation assets. These issues are complex in nature, and their proper analysis requires both detailed knowledge of wholesale power markets and Big Rivers' financial condition and status as a member-owned cooperative. While the impact of the rate increase we are approving today will be offset for some months by the use of Big Rivers' reserve funds, those funds are limited, and once they are exhausted, customers' bills will increase.
>
> Based on all these factors, the Commission believes that now is an appropriate time to review Big Rivers' mitigation efforts to determine the continued reasonableness of those efforts. Therefore, pursuant to the authority set forth in KRS 278.255, the Commission will engage an independent consultant to perform a focused management audit of Big Rivers' efforts to mitigate the impact of the loss of the smelter loads. This audit will review the strategic planning, management, and decision-making of Big Rivers relating to the mitigation efforts. The major focus of the audit will be on the steps that Big Rivers has undertaken or should undertake to mitigate any further financial impact relating to the loss of the smelter load."[25]

The rate increases granted, while less than the amounts requested, have allowed Big Rivers to maintain its financial integrity and to further advance the strategies to mitigate the loss of the smelter load as outlined in the Mitigation Plan. In fact, the most recent reports from the three agencies that rate Big Rivers' debt shows an improvement in the Company's rating. Standard & Poor's revised its outlook from BB-/negative to BB-/stable, citing Big Rivers' sound financial performance in 2013 and 2014, despite the loss of two of its largest customers. However, the agency expressed concern about the risk associated with market sales from Big Rivers' generating facilities:

> "Notwithstanding the presence of sound DSC, we have not raised the rating above 'BB-' because the utility increasingly relies on market sales of electricity for margins to compensate for lost loads. We consider the sustainability of market sales to be unpredictable. In our view, sales in competitive wholesale markets expose the utility to substantial price and volume uncertainty, which we consider to be inconsistent with stronger credit quality. Moreover, the strong demand for electricity that the Polar Vortex created likely enhanced 2014's financial performance, which also raises questions about the

[25] PSC Final Order – CN 2013-00199 October 29, 2015, pg. 19.

> sustainability of that year's projected results. In addition, BREC faces sharply increasing principal amortization that could pressure revenue requirements for the utility to achieve sound DSC."[26]

Similarly, Fitch revised Big Rivers' outlook from BB/negative to BB/stable citing "the positive effects of Big Rivers' mitigation plan…plan-driven cost reductions, idling of plants, rate increases, off-system sales and use of reserve funds have improved financial viability."[27]

Finally, Moody's Investor Service citing "good progress on implementing load loss concentration plans following termination of contracts with two aluminum smelters" and "ownership of generally competitive, albeit excess, coal-fired generation plants." In addition, Moody's stated:

> "BREC's rating outlook is stable, reflecting its good progress in implementing load concentration mitigation strategies, the most critical ones being the credit supportive rate case outcomes at the KPSC and better than anticipated success in selling excess energy and capacity off system in the MISO and other markets at good margins. The stable outlook also incorporates our view that the smelters will continue to operate, thereby providing support for the local economy, including employment levels."[28]

B. Market Excess Power When the Market Price Exceeds its Marginal Generation Cost

FINDING 6: BIG RIVERS HAS SUCCESSFULLY EXECUTED ON THE MITIGATION PLAN STRATEGY TO SELL POWER INTO THE MISO WHOLESALE MARKET. AS A RESULT, BIG RIVERS HAS REALIZED POSITIVE MARGINS THAT PARTIALLY OFFSET THE LOSS OF REVENUE DUE TO THE EXIT OF THE CENTURY SMELTER FACILITIES FROM BIG RIVERS' SYSTEM.

Big Rivers joined MISO effective December 2010, becoming a market participant and allowing Big Rivers to participate in the MISO-administered wholesale markets. MISO operates competitive markets for energy, capacity, ancillary services, and financial transmission rights ("FTRs") to satisfy the electricity needs of its market participants. These markets coordinate the commitment and dispatch of generation to ensure that resources are meeting the system's demands reliably and at the lowest cost.

The MISO energy market consists of a multi-settlement system made up of a financially binding day-ahead market and a real-time balancing market. The day-ahead energy market produces financially binding schedules for the production and consumption of electricity one day before the operating day. The real-time energy market is a physical market based on actual hourly deviations from day-ahead scheduled quantities. Generating resources submit offers to sell electricity and load serving entities ("LSEs") submit bids to purchase electricity on behalf of their customers. The system

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[26] DSC is Debt Service Coverage; BREC is Big Rivers Electric Corporation.
[27] Fitch Ratings Report 02.05.2015, pg. 1.
[28] Ibid, pg. 5.

operator then "stacks" these offers and bids by price until supply exactly meets demand. The last generating resource chosen to meet demand sets the "clearing" price. All generators with offers at or below the market clearing price, are scheduled to operate, and earn the clearing price for their production. Generators with offers that exceed the clearing price are not selected to run, creating a built-in incentive for suppliers to offer their energy at their short-run marginal cost. A generator whose offer clears in the day-ahead market is paid based on the day-ahead clearing price. Generators are paid real-time prices for generation that exceeds the day-ahead scheduled quantities and will pay for generation deviations below their scheduled quantities. LSEs either pay or are paid the real-time locational marginal price ("LMP") for the amount of load that deviates from their day-ahead schedule. A majority of generation and load settles at day-ahead prices.

LMPs are location-specific and are made up of three components: energy, congestion, and losses. The energy component (or marginal cost) is defined as the cost to serve the next increment of demand at the specific location, or node that can be produced from the least expensive generating unit in the system that still has available capacity. The energy component of LMPs is the same at all nodes on the system. The congestion component of the LMP is defined as the cost of serving the next increment of energy when it cannot be delivered from the least expensive unit on the system because it would cause overloading on the transmission system or violate transmission operating criteria. In this case, the congestion component is calculated as the difference between the energy component of the LMP and the marginal cost of the resource providing the additional, more expensive energy to that location. Finally, the loss component of the LMP is calculated to account for the losses incurred in transmitting energy over the bulk power system.

The MISO capacity market has recently undergone, and continues to undergo, significant changes. In 2013, MISO replaced the monthly Voluntary Capacity Auction ("VCA") with an annual Planning Resource Auction ("PRA") that includes zonal requirements for capacity. The PRA allows participants to buy and sell capacity to satisfy residual capacity requirements and better identifies locational capacity needs throughout MISO. Under the current market design, each load-serving entity must forecast its peak load to MISO for the upcoming planning year (running from June through May). Load Serving Entities are obligated to have sufficient generation capacity to meet this peak load plus a planning reserve margin as determined by MISO. Generators with uncommitted capacity can offer to sell this capacity into the auction, and load serving entities in need of capacity to meet their capacity obligation can buy this capacity through the auction. The intersection of the supply and demand curves determines the market clearing price, which is paid to generators and is paid by load-serving entities. The capacity auction results from the 2014/2015 auction revealed three different clearing prices ranging from $3.29/MW-day - $16.75/MW-day, or $0.10-$0.50/kW-month. The recently released auction results for the 2015/2016 auction showed a $3.48/MW-day price for zones 1-3 and 5-7, $150 per MW-day for Zone 4, and $3.29/MW-day for Zones 8-9.

As a member of MISO, Big Rivers has the opportunity to sell energy and capacity not committed under contract into the MISO market. In order to enhance Big Rivers' ability to sell its excess output into the MISO markets, Big Rivers identified a two-phased transmission project to increase deliverability into the MISO region. Phase 1 allowed Big Rivers to transmit to its border all additional energy that would have been consumed by either one of the two smelters. Phase 2 allowed Big Rivers to transmit

to its border all of the additional energy that would have been consumed by both smelters. Big Rivers has completed both phases of the transmission projects and is now able to deliver all of the excess output from the Big Rivers generating facilities to its borders. The bulk power system is now designed to deliver 1,200 MW from within Big Rivers' borders to the balance of the MISO region.[29]

Vectren Corporation and Big Rivers constructed a new 345 kV transmission interconnection between Big Rivers' Robert A. Reid substation in Robards, Kentucky and Vectren's A.B. Brown substation in Posey County as part of a MISO-approved project, with Vectren assuming responsibility for all project costs. This project improved the ability to transfer power into and from Big Rivers' transmission system and enhanced system reliability.

MISO conducted a study in July 2011 to assess the transfer capability from Big Rivers transmission zone (Zone 6) into other MISO zones and Tennessee Valley Authority ("TVA") assuming the loss of all smelter load. The study found that the transmission grid had transfer capability in excess of the amount originally consumed by the smelters, meaning that Big Rivers could deliver the output from its generating facilities into other zones within the MISO footprint. These steps provide additional flexibility for Big Rivers to move excess power off-system following the loss of the smelter load.[30]

The Mitigation Plan committed Big Rivers to selling excess energy into the MISO market whenever the day-ahead price is greater than Big Rivers' generating costs.[31] In 2013, Big Rivers achieved off-system sales, defined as energy sales into the MISO wholesale market through both bilateral contracts and day-ahead market participation, totaling 2,239,046 MWh with revenues totaling [redacted] at an average wholesale price of [redacted]. This represents an off-system sales margin of [redacted] based on the average variable cost of generation for Big Rivers generating fleet. As of December 2014, Big Rivers had achieved off-system sales of 5,420,360 MWh with revenues totaling [redacted] at an average wholesale price of [redacted]. A summary of off-system sales is shown in Table 1 below.

[29] Big Rivers Executive Meeting Notes, Michael Chambliss, VP System Operations.
[30] Case No. 2012-00535 Big Rivers Application Volume 5 of 5, pg. 84.
[31] These transactions are implemented by Big Rivers as a Market Participant in the MISO day-ahead market.

TABLE 1: SUMMARY OFF-SYSTEM SALE STATISTICS[32]

	2013			2014		
	ACTUAL	BUDGET	VARIANCE	ACTUAL	BUDGET	VARIANCE
OFF-SYSTEM SALES (MWH)	2,239,046	1,603,329	40%	5,420,360	1,937,294	180%
OFF-SYSTEM REVENUE ($)	[redacted]					
OFF-SYSTEM SALES ($/MWH)	[redacted]					
VARIABLE GEN COST ($/MWH)	[redacted]					
OFF SYSTEM SALES MARGINS ($)	[redacted]					
OFF-SYSTEM SALES MARGINS ($/MWH)	[redacted]					

Margins realized through off-system sales, defined as revenues minus the cost of generation, totaled over [redacted] through December of 2014. These sales directly impact the rates paid by the customers of the member cooperatives by reducing the average fuel cost flowed through the Fuel-Adjustment Clause. Big Rivers can sell all uncommitted output into the energy and capacity markets by offering this output into the wholesale markets at a price based on a unit's variable cost. The margins realized by Big Rivers' sales in the wholesale market are a function of clearing prices in the market and strategic actions by Big Rivers, such as Big Rivers' decision to enter into forward bilateral sales from Wilson rather than simply relying on the MISO market.

C. Evaluate Possible Short-Term and Long-Term Wholesale Power Contracts and Participation in Capacity Markets

1. Business Development

FINDING 7: BIG RIVERS' NEWLY CREATED BUSINESS DEVELOPMENT POSITION HAS ALLOWED IT TO MORE ACTIVELY SEEK OUT OPPORTUNITIES TO SELL OUTPUT FROM BIG RIVERS' FACILITIES.

Big Rivers has been actively marketing its excess generation as part of the execution of the Mitigation Plan. In 2013, the Company created a new business development position and hired an individual with responsibility for identifying opportunities to sell Big Rivers' excess output. This position reports directly to the Vice President of Energy Services and is tasked with identifying possible counterparties and load-serving entities willing to consider contracting for the output from Big Rivers' coal-fired and gas-fired facilities. This individual works with ACES to obtain market intelligence and pursue discussions with prospective energy buyers, and utilizes price forecasts from

[32] Energy Services Report December 2013 and December 2014.

ACES and Wood Mackenzie[33] to develop the pricing contained in various power sale proposals.[34]While it is not possible to determine how successful Big Rivers would be in selling its excess output under bilateral arrangements without this position, tasking an individual with responsibility for business development activities places the level of importance on these activities that is necessary to maximize the chances of success in selling Big Rivers' excess generation.

2. Bilateral/Wholesale Power Contracts

FINDING 8: BIG RIVERS HAS ACHIEVED A MODERATE AMOUNT OF SUCCESS IN SELLING POWER TO THIRD PARTIES UNDER SHORT-TERM AND LONG-TERM CONTRACTS. HOWEVER, BIG RIVERS' PRICE FORECASTS HAVE BEEN OPTIMISTIC, POTENTIALLY CAUSING IT TO OVERPRICE POWER IN CONTRACTING OPPORTUNITIES.

Big Rivers is selling a portion of power from the Wilson facility under bilateral contracts that will allow the Company to continue operating the plant in the short term. This has resulted in more than $15 million in total member benefits through contribution to fixed costs for Wilson and fuel adjustment clause credits through January 2015. The low-cost fuel purchased to fulfill the Wilson transaction lowered Big Rivers' average fuel cost resulting in an approximately $13 million reduction in the members' monthly Fuel Adjustment Charge. The Company anticipates tens of millions of dollars of additional member benefits during the months of February 2015 through December 2015 from the sale of power from the Wilson facility.[35]

In addition, three Nebraska entities (Northeast Nebraska Public Power District, City of Wayne and City of Wakefield) have signed contracts to purchase 67 MW of power annually from the Big Rivers system during the years 2018-2026. A Stipulation and Recommendation ("Agreement") between Big Rivers, the Office of the Attorney General ("AG") and KIUC was submitted to the Commission on April 15, 2015 and was approved by the Commission on July 21, 2015. Under this Agreement, Big Rivers has conditionally committed to depositing a portion of the margins from sales under the Nebraska agreements into to the Economic Reserve for credit back to member cooperative customers. [36] The expected margins from the Nebraska contracts are approximately $65 million over the nine-year term of the agreements and will begin in 2018.

As of March 2015, Big Rivers has provided over 40 proposals to provide power to entities seeking additional energy and capacity in the region. Based on information provided by Big Rivers, the activity level in responding to solicitations and providing power proposals in response to RFPs has been robust. However, Big Rivers has achieved marginal success in selling output from Wilson. This is potentially due to relatively high internal forecasted capacity prices based on projected capacity

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33 Wood Mackenzie is a global consulting firm that provides energy price forecasting services to the industry.
34 Big Rivers response to Concentric's third data request, February 24, 2015.
35 Wilson Forward Sale Results through January 2015. Members' direct benefits vary according to the fuel cost savings associated with the continued operation of Wilson.
36 Stipulation and Recommendation, April 15, 2015.

auction clearing prices in MISO Zone 6, and in some cases, the added cost of transmission required to deliver the output from Wilson to the purchasing entity.

In terms of forecasted capacity prices, the current bilateral market provides some indication of future capacity pricing in MISO. Dynegy has been able to post approximately $2.00/kW-month in recent periods in bilateral contracts, which is consistent with the current contract price for capacity sales from Wilson.[37] Dynegy has committed over 2,200 MW under bilateral contracts for the 2015/16 period, leaving it with approximately 4,200 MW to sell into the auction.[38] There is speculation in the market that the bilateral deals, as well as the risk that MISO will adopt reforms that more readily enable demand response resources to participate actively in its capacity market, will keep prices suppressed in MISO's residual' capacity auction in future years.

Given these projections, Big Rivers' forecast of the value of the capacity from the Wilson and Coleman facilities in the MISO market appears to be inflated. Big Rivers is basing its most recent financial projections on a capacity price of $[redacted] in 2016, [redacted] in 2020 and [redacted] by 2026, based on [redacted] of the May 2014 Wood Mackenzie price curve.

The fundamental design of any capacity market is based on the objective of encouraging new entry and the retention of existing generation when capacity is expected to be short of projected demand. This means that when capacity is short of meeting demand, prices will increase to a theoretical cost of market entry of a new generating unit. This price will then decrease rather sharply when new generation is no longer needed. The "boom and bust" cycle will continue, unless the market design includes a mechanism to smooth these market price peaks and valleys, such as a demand curve mechanism that is currently utilized in New England, PJM and New York. Big Rivers' forecast does not recognize this fundamental characteristic of capacity markets. Rather, Wood Mackenzie's forecast assumes a capacity price that is approximately [redacted] of the cost of new entry over the entire forecast period, which overstates the value of the capacity from the Wilson and Coleman units.

In summary, Big Rivers has sold some of its excess capacity through 2015 and from 2018 – 2026. These sales have been the result of active outreach and responses to RFPs. In reviewing Big Rivers' marketing efforts and the Company's success rate in being awarded contracts based on the number of proposals provided, two observations can be made. First, in the instances where Big Rivers was definitively told that it was not the low bidder, it is likely that Big Rivers' relatively high capacity price forecast contributed to the loss of opportunity. There may have been cases as well where the cost of delivery from Big Rivers' facilities to entities outside of Big Rivers' footprint also placed it at a disadvantage. It is unlikely that the cost of generation from Wilson was the cause of higher pricing relative to other bidders, since the Wilson unit is competitive in the market, as discussed in Section VIII. Second, there were some opportunities to provide power to entities that stated an unwillingness to buy power from a coal-fired facility and wanted a cleaner gas option. Big Rivers is exploring the conversion of Coleman to gas, as discussed in Section VIII of this report.

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37 UBS MISO Report March 2015.
38 UBS Electric Utilities & IPPs The MISO Capacity Auction Preview, March 31, 2015.

Big Rivers continues to informally initiate discussions with other potential parties, on a strictly confidential basis, to explore possible opportunities for Big Rivers to market its excess power.

The combination of bilateral sales and wholesale market sales have allowed Big Rivers to achieve operating margins significantly in excess of budget due to increased margins on sales into the MISO wholesale market. The Wilson unit is favorably positioned in MISO, and higher day-ahead prices resulted in increased generation, higher energy prices, and higher margins, as shown in Table 2 below:

TABLE 2: SUMMARY STATEMENT OF OPERATIONS YTD – DECEMBER 2014[39]

	2014			2013	
	Actual ($000's)	Budget ($000's)	Fav/(UnFav) Variance ($000's)	Actual ($000's)	Fav/(UnFav) Variance ($000's)
Revenues	505,860	374,271	131,589	562,447	(56,587)
Cost of Electric Service	478,092	372,350	(105,742)	557,792	79,700
Operating Margins	27,768	1,921	25,847	4,655	23,113
Interest Income/Other	4,899	4,916	(17)	3,984	915
Net Margins - YTD	32,667	6,837	25,830	8,639	24,028

3. MISO Capacity Market Sales

FINDING 9: BIG RIVERS HAS SUCCESSFULLY SOLD ITS EXCESS CAPACITY FROM WILSON INTO THE MISO CAPACITY MARKET, WITH ADDITIONAL CAPACITY SOLD UNDER CONTRACT THROUGH DECEMBER 2015.

Big Rivers has sold a portion of capacity from the Wilson facility in the short-term. Under the MISO capacity market construct, any capacity not sold under a bilateral contract can be offered for sale into MISO's annual capacity auction. Big Rivers offered this capacity into the MISO capacity auction, conducted in April of 2014 and was successful in selling the uncontracted capacity from Wilson into the capacity market in MISO from June 2014 through May of 2015. Based on the capacity market construct in MISO, all units that clear in the market and are awarded a capacity "contract" receive the clearing price set by the last unit needed to meet local and regional capacity requirements. Big Rivers was paid $16.75/MW-day, or $0.51/kW-month through May of 2015. Big Rivers sold additional capacity in the bilateral market, [redacted] from June 2015-May 2016 and [redacted] from June 2016-May 2017.

[39] Big Rivers Financial Report, December 2014.

D. Expand Existing Load and Attract New Industrial Load

1. Expand Existing Load

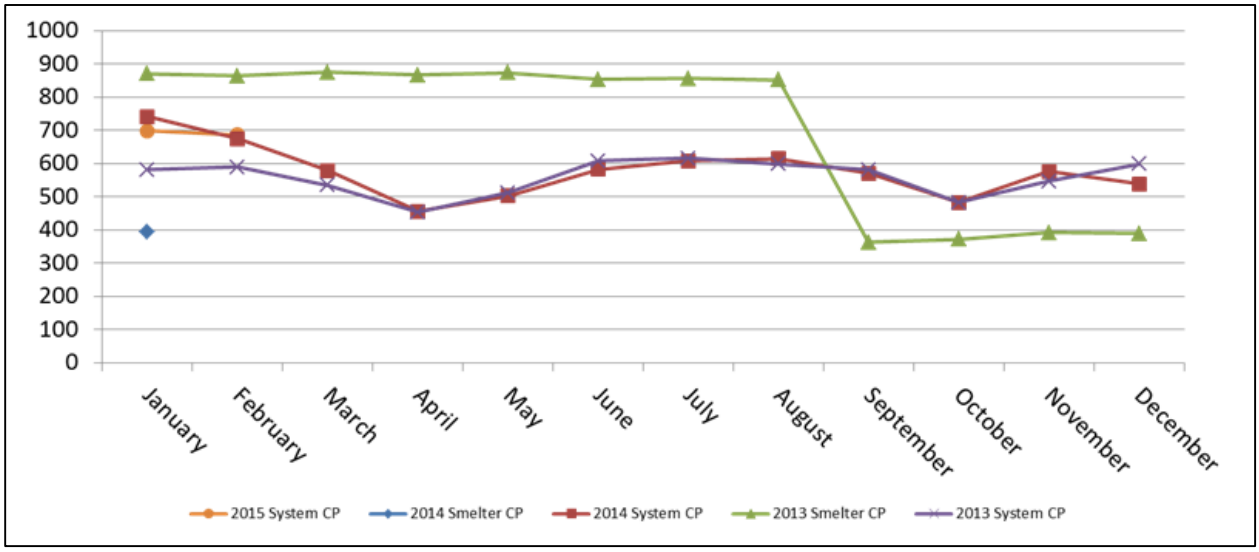
FINDING 10: BIG RIVERS HAS REALIZED RECENT INCREASES IN PEAK LOAD DUE TO BOTH NATIVE LOAD AS WELL AS NEW LOAD. HOWEVER, INCREASES IN LOAD ARE NOT EXPECTED TO MATERIALLY REDUCE THE AMOUNT OF BIG RIVERS' EXCESS CAPACITY.

Big Rivers has been involved in numerous activities and discussions to expand existing load in the region. In recent months, Big Rivers has developed eleven proposals utilizing an Economic Development Incentive Rate ("EDIR") for its three member cooperatives. Promoting existing load expansion through the EDIR has created the opportunity for an expansion of the Aleris facility in Hawesville, Kentucky.[40] Big Rivers is in the process of preparing to submit the EDIR for Aleris to the Commission for approval. Big Rivers is also involved in several local development groups and efforts to attract more business to the region and the EDIR rate developed for Aleris can be used as a guideline in discussions with other businesses. Additional long-term opportunities include local load expansion potential pursuant to local economic development efforts and future economic development rates.[41]

Big Rivers' system peak has increased in the past two years. Big Rivers' 2014 peak of 740MW surpassed Big Rivers' historical native peak by 80MW, and the January 2015 peak of 700MW was 40MW greater than the pre-2014 Big Rivers' peak. The growth in system peak from 2013 through January 2015 is shown in Figure 3 below.

[40] The EDIRs must be approved by the Commission.
[41] Ibid.

FIGURE 3: BIG RIVERS PEAK DEMAND (MW) JANUARY 2013 THROUGH JANUARY 2015[42]



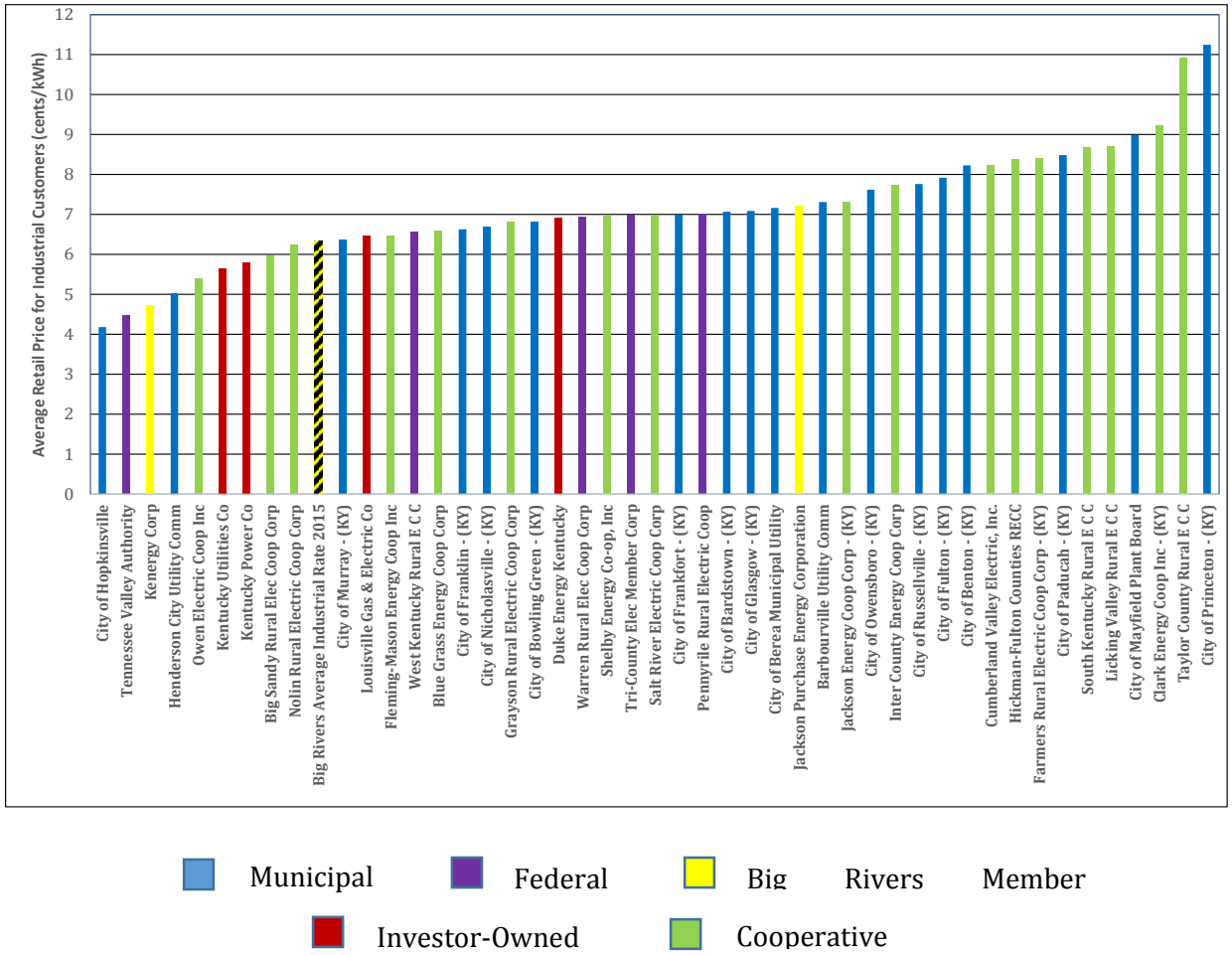
2. Attract New Industrial Load/New Members

FINDING 11: BIG RIVERS HAS HAD LIMITED DISCUSSIONS WITH COOPERATIVES AND MUNICIPALS IN KENTUCKY THAT ARE CURRENTLY BEING SERVED BY OTHER ENTITIES TO ACQUIRE NEW LOAD, BUT THE TIMEFRAME REQUIRED TO EXECUTE ON THIS STRATEGY IS LONGER-TERM IN NATURE.

Big Rivers has experienced load growth of approximately 25 MW since 2012 due to the addition of new commercial and industrial customers. An additional 25 MW is currently being evaluated by new coal mining facilities. Big Rivers continues to explore opportunities to attract new load to its system from other nearby systems. A recent benchmarking study conducted by Big Rivers shows its' rates are currently competitive with other systems, as shown in Figure 4.

[42] Big Rivers Energy Services Report 2015 Rev 1.

FIGURE 4: INDUSTRIAL CUSTOMERS IN KENTUCKY – AVERAGE RETAIL PRICE OF ELECTRICITY IN 2013[43][44]



Big Rivers is also in discussions with a number of large electricity consumers it considers prospective customers. These discussions are ongoing but are longer term in nature, as most cooperatives and municipals have multi-year notice commitments.[45][46] For example, twelve municipal utilities have recently submitted letters to terminate their contracts with Kentucky Utilities Company under a five-year notice provision. This type of notice provision is typical for contracts between municipals and

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43 *See* http://www.eia.gov/electricity/data.cfm#sales for the data for utilities other than Big Rivers. Note that the chart includes the average retail price of electricity in 2013 for all entities shown, but the Big Rivers' rate shown is the actual July 2015 YTD average industrial rate excluding the effect of any reserve funds.

44 Kenergy's large industrial load represents more than 95% of the large industrial load on the Big Rivers system.

45 Load Replacement Strategy, October 2014.

46 Interview with Bob Berry, February 4, 2015; Load Replacement Strategy, October 2014.

utilities. As a result, Big Rivers' ability to mitigate the loss of the smelter load by attracting new members is a strategy that, if successful, is likely to take more than five years to implement.

It is important to note that Big Rivers' current price advantage relative to other load serving entities will diminish as the Reserve Funds run out, creating additional difficulties in attracting new members. While transmission revenues from Century in the amount of approximately $7 million per year are currently being deposited in the Economic Reserve Fund, this will not prevent the bulk of the Reserve Funds from being exhausted.[47] Big Rivers' average industrial rates are projected to effectively increase by approximately 20% after the exhaustion of the Reserve Funds. This will minimize or eliminate the rate advantage that Big Rivers currently enjoys over other load serving entities.

Big Rivers' system-wide industrial rates are among the most significant factors in its ability to attract significant new load. Global and local economics, in addition to the business incentives being offered by the state, also play a very significant role. Whatever strides are made in increasing the peak demand on Big Rivers' system are not likely to be enough to completely close the gap between load and capacity created by the loss of the smelter customers. The two smelters had peak loads of approximately 480 MW and 370 MW, while a typical large industrial customer served by the member cooperatives is in the range of 40 MW. This means that the gap would realistically be filled with many smaller industrial customers relative to the smelters.

E. Additional Options

FINDING 12: BIG RIVERS HAS IDLED COLEMAN STATION, AND HAS PASSIVELY CONSIDERED OTHER STRATEGIES (I.E., SELLING ITS GENERATING FACILITIES AND PURSUING A MERGER OR ACQUISITION) IDENTIFIED IN THE MITIGATION PLAN.

As part of the Mitigation Plan, Big Rivers committed to evaluating the idling of generating assets, the sale of generating assets, a merger with another generation and transmission cooperative, or acquisition of Big Rivers by another generation and transmission cooperative or an Investor-Owned Utility to the extent that these strategies were attractive based on market conditions.

In terms of idling generation, Big Rivers originally proposed to idle the Wilson and Coleman facilities after the loss of the smelter load. Ultimately, Big Rivers was able to sell a portion of the output from the Wilson facility under a bilateral contract, and idled Coleman Station in May 2014. The current idling of Coleman has resulted in a savings of approximately [redacted] in operating expenses associated with this facility.[48] Big Rivers has committed to selling additional energy and capacity through 2026 under agreements that were approved by the Commission in July 2015.

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[47] The transmission revenues paid by Century to Big Rivers for Century Hawesville are deposited in the Economic Reserve Fund in the amount of $7 million per year.

[48] Case No. 2012-00535 Rebuttal of Robert W. Berry, Exhibit Berry Rebuttal-2, pg. 1 of 1.

In terms of selling a plant, Big Rivers has had discussions regarding the sale of the Coleman facility and has included offers to sell the facility in its response to RFPs with no success to date. Discussions have also occurred between Big Rivers and a counterparty in which the counterparty has indicated an interest in purchasing one of the Coleman units, or entering into a tolling arrangement if Big Rivers first converts the unit to natural gas. Big Rivers is currently refining the costs associated with the conversion option to inform its evaluation of the opportunity.[49]

In addition, Century has indicated some interest in purchasing the Coleman facility and has performed some technical due diligence. However, Century did not provide any information regarding the value of the facility. There have been no recent discussions between Century and Big Rivers regarding the purchase of the Coleman facility.

Offers to sell the Coleman units/facility or the Wilson facility have been based on achieving a sale price that would not impair Big Rivers' ability to issue debt under its Indenture. Under the Indenture, Big Rivers is able to issue debt primarily based upon Property Additions to its utility plant (Bondable Property) or on the basis of the retirement of debt previously issued under the Indenture. The disposition of an asset would result in the reduction of Bondable Property in an amount equal to the 2008 net book value plus the cost of all additions to the respective plants since 2008. As of July 13, 2013, net book values were approximately $187 million, or $420/kW for Coleman and $454 million, or $1,090/kW for Wilson.[50] This charge against Bondable Property can be offset by a credit for cash received on the sale and set aside under the Indenture in order to obtain a release of the facility from the lien of the Indenture. That release will be necessary to facilitate a sale. A valuation conducted by Burns & McDonnell of Wilson indicated a value of approximately [redacted] for the facility. However, as discussed further in Section VIII of this report, recent transactions of coal units across the country show sale prices closer to $180/kW. The current Mortgage Indenture restrictions, and loan covenants, as further discussed in Section VIII, have acted as a constraint on Big Rivers' consideration of selling either of these facilities in the short term. Big Rivers has not retained an outside adviser or broker to consider the sale option. Big Rivers reports that it is continuing to analyze the timing and financial effects of selling either the Wilson or Coleman facilities at a range of values between [redacted] and a zero value.[51]

Big Rivers has had what may best be described as very informal discussions of the potential to either (1) merge with another generation and transmission cooperative, or (2) sell Big Rivers to another generation and transmission cooperative or an Investor-Owned Utility. Concentric considers these potential opportunities much longer term in nature, which can take several years to complete, and frequently involve pre-established relationships at the cooperative level.

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49 Interview with Bob Berry, February 4, 2015.
50 Direct Testimony of Mr. Frank Ackerman, Case 2013-00199, October 29, 2013, pg. 23.
51 Interview with Bob Berry, February 4, 2015.

VIII. FORWARD-LOOKING ANALYSIS OF THE MITIGATION PLAN

Concentric's Forward-Looking Analysis involved analyzing the reasonableness of the Mitigation Plan in mitigating the loss of the smelter load in the future. This included a review of Big Rivers' mission and the role the Mitigation Plan may play in that mission going forward, an analysis of the current and expected competitiveness of the Wilson and Coleman facilities, a review of expected market conditions in MISO, consideration of the potential impact of environmental compliance mandates on Big Rivers' facilities and the MISO market in general, an assessment of the potential for a sale or lease of one or both of Big Rivers' coal-fired facilities, and consideration of debt restructuring and financing requirements. In terms of consideration of a merger or acquisition, Concentric considers the process followed to mitigate the loss of the smelter load to be a continuum of actions. A merger would necessarily fall at the end of the process, after other options to add load or decrease generation have been exhausted. Concentric conducted this assessment largely through documentation review, interviews, MISO market analysis, and research of publically available information.

A. Ability to Sell Excess Energy and Capacity in the Future

1. Current and Expected Competitiveness of the Wilson and Coleman Facilities

FINDING 13: BIG RIVERS' WILSON UNIT IS CURRENTLY COMPETITIVE IN THE MISO MARKET, WHILE THE COLEMAN UNITS ARE LESS COMPETITIVE. BOTH FACILITIES WILL BE CHALLENGED IN THE FUTURE AS MORE EFFICIENT UNITS ENTER THE MARKET.

The Wilson and Coleman generating facilities are coal-fired facilities with heat rates of approximately [redacted] BTU/kWh and [redacted] BTU/kWh, respectively.[52] The Wilson unit has an average variable cost, including fuel, of approximately [redacted], while the Coleman units have variable costs in the range of [redacted]. The variable cost forms the basis for offers from generating units into the MISO wholesale markets and the value of the energy in the wholesale markets and under both short-term and long-term bilateral contracts with market participants. The Wilson and Coleman units have historically operated with capacity factors ranging between 75% - 90%. This is the expected range of capacity factors for coal-fired units in MISO, where coal-fired generation sets the energy price in over 90% of the hours.

Currently, the heat rate of the unit that sets the clearing price in MISO, known as the locational marginal price or LMP at the Indiana Hub, which is the location that is most representative of the location of Big Rivers' generation, is approximately 12,046 BTU/kWh, as shown in Figure 5.

[52] Big Rivers Plant Operating Update, January 2015.

FIGURE 5: MISO MARGINAL HEAT RATES FEBRUARY 2015[53]

Hub/Zone	Average	Cong	Loss	Change	Avg $/Mo	Marginal heat rate
On-peak						
Indiana Hub	29.63	1.52	0.60	1.18	29.36	12046
Michigan Hub	30.94	1.95	1.48	1.90	30.21	11437
Minnesota Hub	21.21	-5.23	-1.08	-5.81	25.38	8056
Illinois Hub	27.72	0.83	-0.62	0.47	26.82	10461
Off-Peak						
Indiana Hub	25.50	0.86	0.64	2.32	24.78	10301
Michigan Hub	26.11	0.79	1.33	2.31	25.14	9743
Minnesota Hub	18.64	-4.19	-1.17	-2.41	20.96	7226
Illinois Hub	23.91	0.27	-0.35	1.85	22.55	9080

Because the unit that sets the LMP, which is known as the marginal unit, is frequently a coal-fired unit with similar fuel and operating costs to the Coleman and Wilson units, the advantage that these units have in the wholesale energy market lies in the efficiency of these units relative to the marginal unit. A comparison of the Wilson and Coleman units to other units operating in MISO shows that these units are on the lower portion of the dispatch, or supply curve, as shown in Figures 6 and 7. A lower position on the supply curve means that a unit is dispatched before other units that are higher on the supply curve. The Coleman units are not as efficient as the Wilson unit and are dispatched somewhat higher on the supply curve.

[53] Megawatt Daily, February 2015.

FIGURE 6: MISO GENERATION SUPPLY STACK 2013 - WILSON[54]

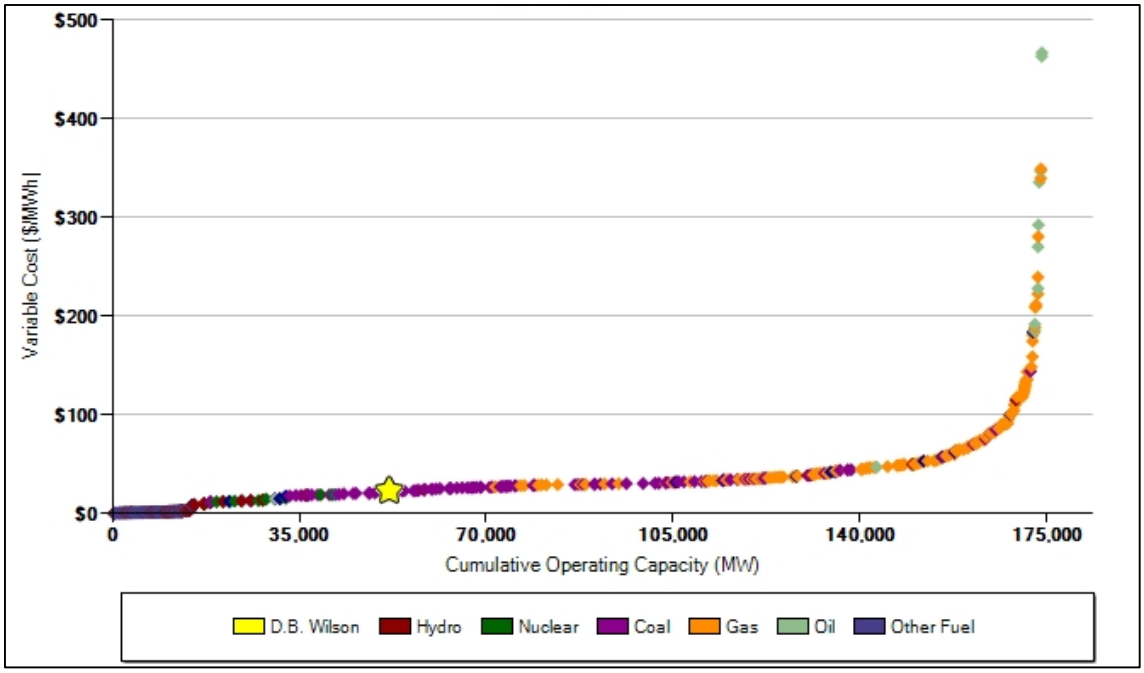
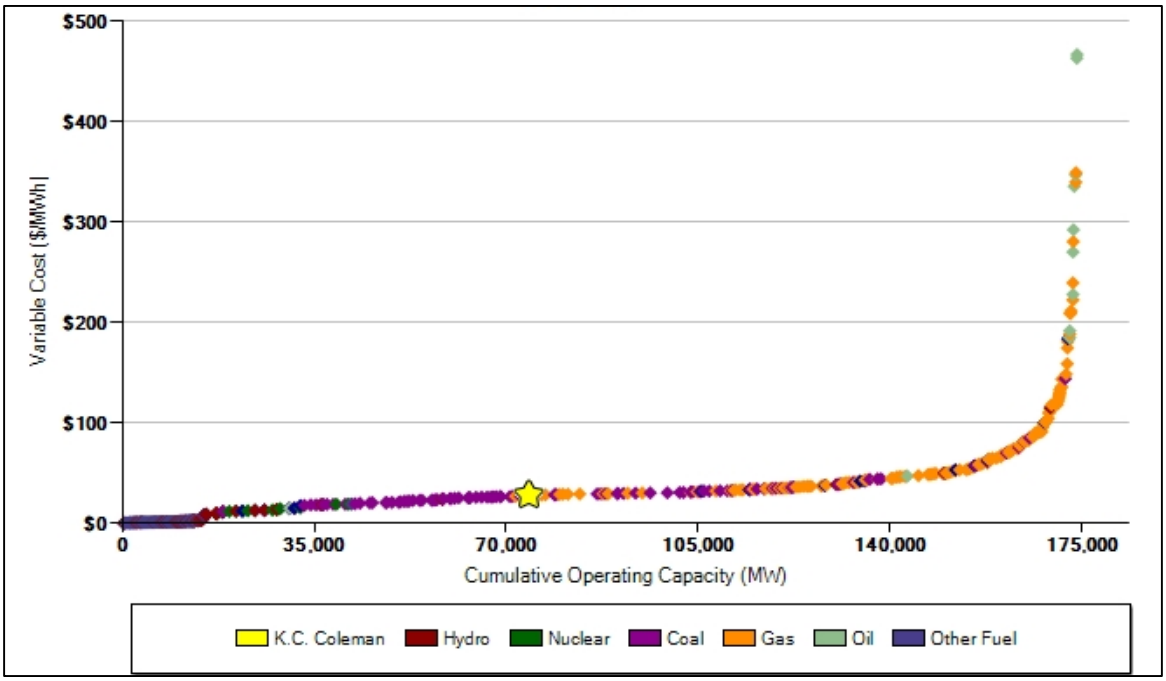


FIGURE 7: MISO GENERATION SUPPLY STACK 2013 - COLEMAN[55]



54 SNL Energy.
55 SNL Energy.

While the Wilson and Coleman facilities are currently reasonably well-positioned on the MISO supply curve, these facilities (and the Coleman units in particular) will be more challenged in the future as more efficient gas-fired combined cycle units with heat rates in the 6,700 to 7,200 BTU/kWh enter the market to fill the stated MISO need for additional capacity. Over 5,000 MW of new requests for interconnection of gas-fired generation entered the MISO interconnection queue in September of 2014.[56] MISO has acknowledged an expected market increase in gas-fired generation in the future. In its report to the Federal Energy Regulatory Commission ("FERC"), MISO stated that its level of concern regarding fuel assurance is currently low, overall,

> "but is expected to increase significantly over time as natural gas reliance increases due to environmental requirements and evolving fuel economics. With the potential incremental retirement of approximately 10 GW of coal-fired capacity by the spring of 2016, reliance on natural gas-fired generation increases during the 2016-17 winter. Toward the end of the decade, increased demand growth and the potential for additional coal-fired capacity retirements (due to more stringent National Ambient Air Quality Standards and/or greenhouse gas regulation) are likely to further increase natural gas reliance."[57]

Big Rivers has made operational improvements at the Wilson and Coleman facilities since the reacquisition of the facilities from LG&E, including a [redacted] improvement in heat rate at the facilities between 2009 and 2013. A review of benchmarking data provided by Big Rivers shows that the company's coal units continue to achieve top quartile performance for comparable coal units in terms of availability, forced outage rates, capacity factor, and fuel costs. A tour of Big Rivers' generating facilities conducted as part of Concentric's due diligence effort confirmed the commitment of Big Rivers' employees to maximizing the performance of the companies generating assets to ensure that they are positioned to operate as competitively as possible in the marketplace.[58] Any additional efficiency improvements are likely to be minimal.

The expected entry of newer and more efficient gas-fired generation in MISO, in addition to forecasted low gas prices,[59] will put increasing economic pressures on existing coal-fired units, as these lower cost units will more frequently set clearing prices in the future. Forecasted gas prices and coal prices are shown in Figure 8 below.

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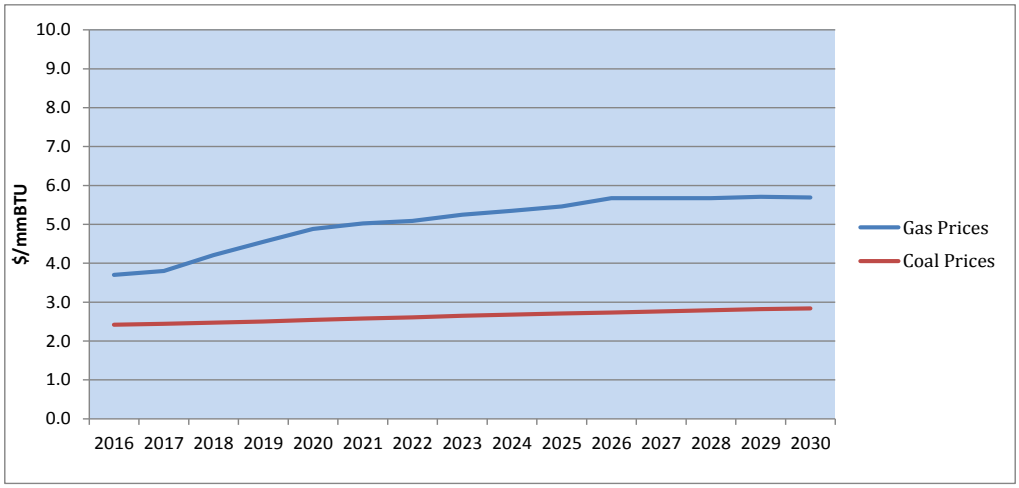
56 MISO Generator Interconnection Process and Queue Status Update Board of Directors System Planning Committee, October 22, 2014.

57 American Public Power Association, Public Power Daily, February 24, 2015.

58 GKS Navigant Consulting Benchmarking 2009 through 2013.

59 Natural gas prices fell from $4.37/mmBtu in 2010 to $3.98/mmBtu in 2011, the lowest annual average price for natural gas since 2002 and current spot markets are trading at about $2.50/mmBtu.

FIGURE 8: FORECASTED NATURAL GAS PRICES AT HENRY HUB[60]



This means that the economic case for continued operation of a coal plant could largely come down to the price differential between coal and its most likely alternative -- natural gas: the lower the price of gas, the greater the risk to coal plant revenues. These pressures have contributed to the recent business decisions of some coal plant owners to retire their less profitable plants.

In addition to stagnant coal and gas price differentials, slower than expected economic growth has caused a drop in demand for relatively more expensive coal plants that previously had been economic to operate. Energy prices have also moderated due to the growth of energy efficiency and other demand-side management programs in the region. These measures have played a significant role in reducing expected growth in peak demand and energy. According the MISO's 2014 Transmission Expansion Plan, the "business as usual" case shows an expected growth in demand of 0.75% and an expected growth in energy usage of 0.81%.

Furthermore, the addition of renewable resources into the MISO market has been robust, primarily due to renewable energy mandates in nearly every state in the MISO North and Central footprints. MISO's 2014 Transmission Expansion Plan includes an additional 6,900 MW of wind generation by 2028.

Finally, new environmental requirements will put additional financial pressures on coal plant operators. The future capital expenditures necessary for continued compliance with environmental mandates, as they are known today, will cost in excess of $70 million for the Coleman facilities.[61] It is important to note that any retrofits on Coleman that will allow for future operation of the station in compliance with environmental mandates will result in the consumption of CSAPR allowances

60 EIA Annual Energy Outlook 2015.
61 2012 Environmental Compliance Plan.

currently being banked as a result of the idling of Coleman Station. These allowances are currently being used for compliance purposes for Big Rivers' generation portfolio.[62]

This is expected to add approximately $1/MWh to $2/MWh to the variable cost of generation to these units based on publically available information. While a majority of the coal units operating in MISO will also incur similar environmental compliance costs, gas-fired units, nuclear units and renewable generation will not incur such costs. This will result in a shift of the dispatch curve to the left, making coal-fired units less competitive relative to these alternative forms of generation and thereby further decreasing the capacity factors of these units in the future.

In addition to the wider market factors, a generating plant's age and relative efficiency are also important factors that should be considered in evaluating resource choices. These factors play a significant role in generation plant retirement decisions being made by companies.

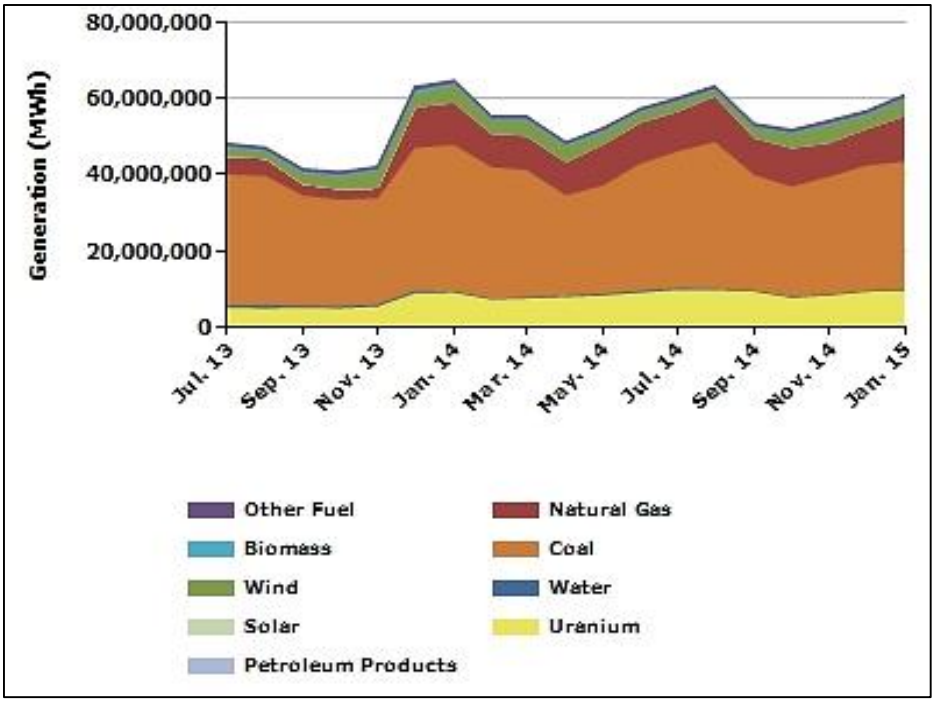
2. Expected Generation Retirements in MISO

FINDING 14: PROJECTED RETIREMENTS IN MISO CREATE SOME OPTIONALITY FOR BIG RIVERS' EXCESS GENERATION, BUT THE DEGREE OF OPTIONALITY IS HIGHLY UNCERTAIN AND MERCHANT GENERATORS WITH EXCESS GENERATION WILL CHALLENGE BIG RIVERS IN SELLING ITS EXCESS POWER.

Coal continues to play a major role in serving customer load in the MISO region by providing critical baseload energy, as shown in Figure 9 below.

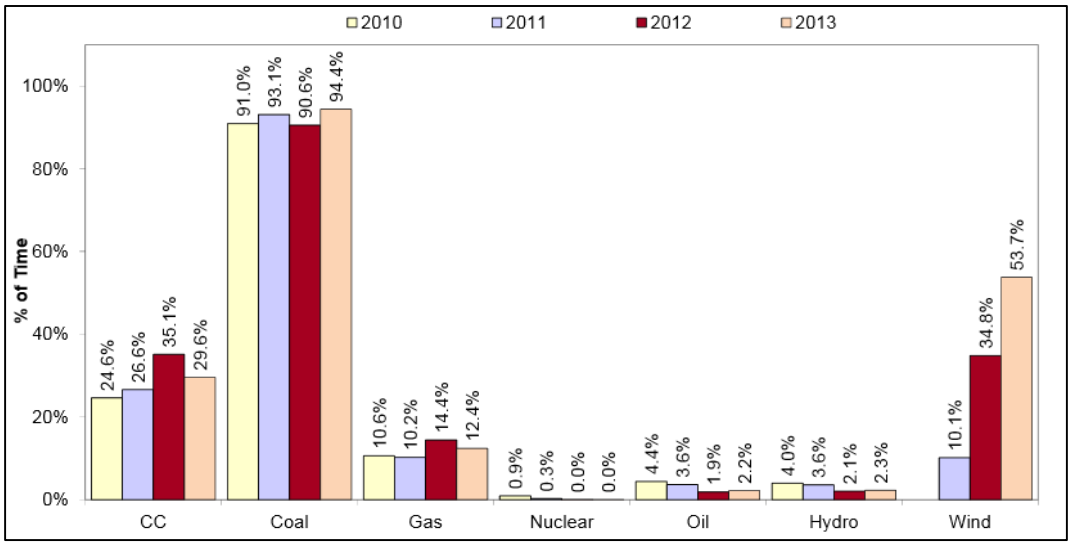
[62] Big Rivers' generation portfolio is compliant with existing environmental regulations with allowances received from the idling of Coleman for the next five years. Specifically, the Coleman allowances allow Wilson to operate in compliance with the Cross State Air Pollution Rule ("CSAPR").

FIGURE 9: MISO GENERATION BY FUEL TYPE[63]



Coal is on the margin in approximately 90 – 95% percent of the hours in MISO, as shown in Figure 10.

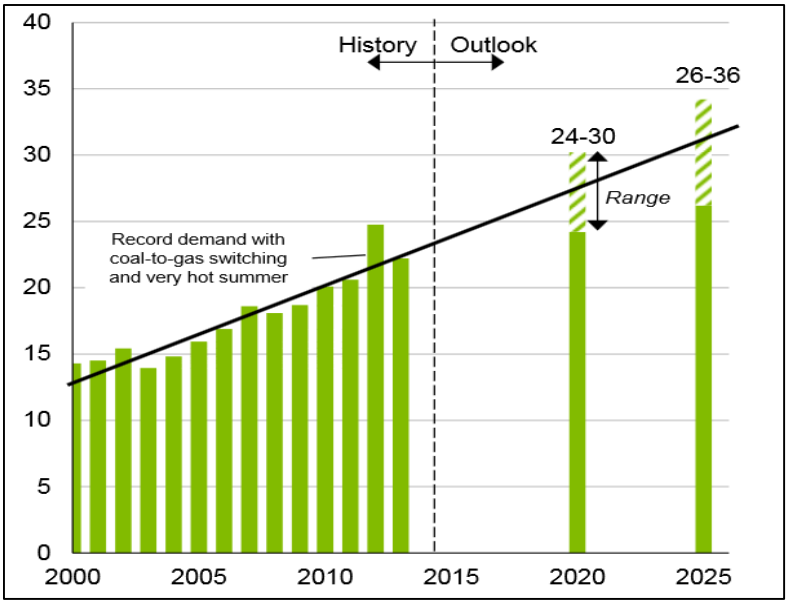
FIGURE 10: PERCENTAGE OF TIME FUEL IS ON THE MARGIN 2010 - 2013[64]



63 SNL Energy
64 www.misoenergy.org

This is expected to change in the future, however, with natural gas playing a larger role in setting prices and serving load in MISO. In fact, MISO is projecting an additional 9,600 MW of natural gas generation by 2028, compared to an additional 8,600 MW of renewable generation, with no coal units proposed to be built to meet the projected capacity need.[65] MISO recognized the expected increase in gas demand due to the more prominent role gas-fired generation is expected to play in the future, as shown in Figure 11 below.

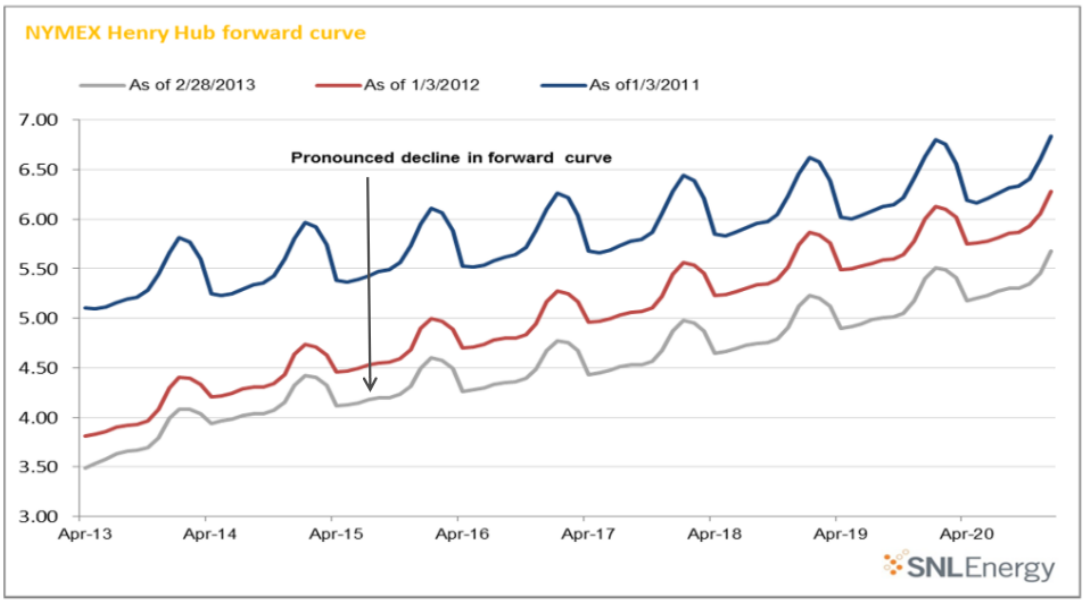
FIGURE 11: MISO GAS DEMAND FOR U.S. POWER GENERATION (BCF PER DAY)[66]



This means that Big Rivers' coal units will be competing against more efficient and potentially less expensive gas units in setting price and being dispatched in MISO. With the forward curves for gas prices showing a marked decrease, as shown in Figure 12, and projected to remain relatively flat over the next five to ten years, coal-fired generation will see increased pressure on operating margins.

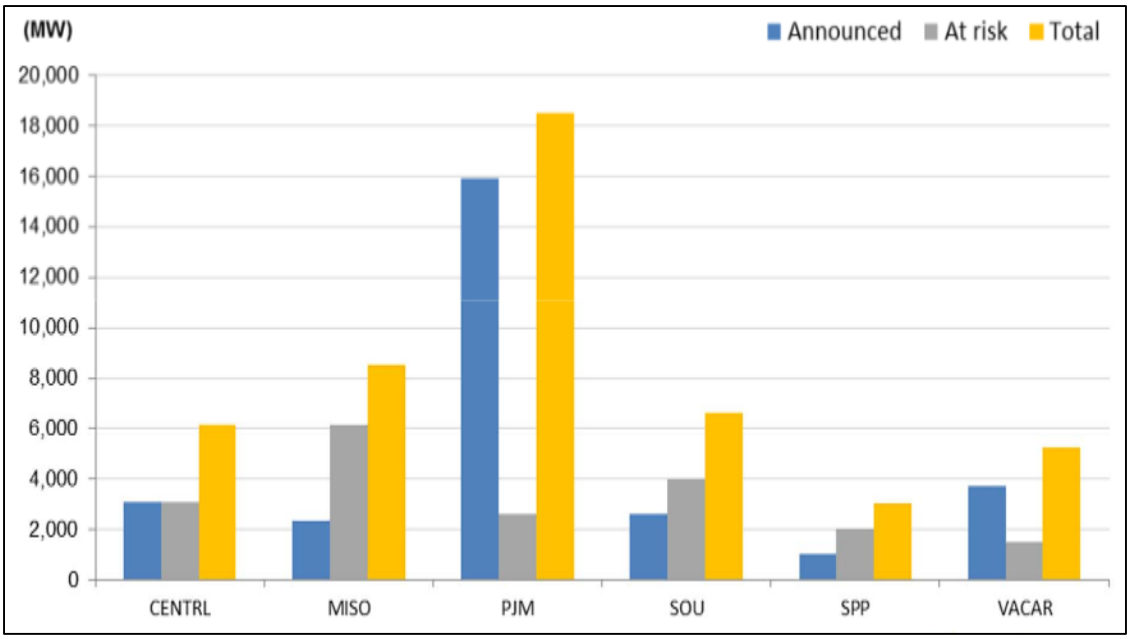
65 http://www.misomtep.org/generation-portfolio-analysis/.
66 MISO Quadrennial Energy Review, September 2014.

FIGURE 12: PROJECTED NATURAL GAS PRICES[67]



In terms of generation retirements, over 2,000 MW of planned retirements have been announced in MISO, with another 6,000 MW being at risk of retirement, as shown in Figure 13 below.

FIGURE 13: ANNOUNCED AND AT-RISK RETIREMENTS BY REGION[68]



67 SNL Energy.
68 Ibid.

These projected retirements should create some opportunity for Big Rivers to sell its excess capacity in the bilateral market, and several participants in MISO have stated a need for generation in the future. However, the impact of current and future environmental regulations including the Clean Power Plan ("CPP") regulations on the operation and viability of Big Rivers' generating units is uncertain at this time. Big Rivers has responded to a number of potential MISO counterparties that may have an interest in the output of Coleman or Wilson. The list includes over 1,000 MW of potential load in the MISO footprint.

There are, however, independent power producers with surplus generation that will compete with Big Rivers for the sale of its generation. Dynegy has over 4,000 MW of generation available to sell in the MISO footprint. Big Rivers will continue to face competition from merchant generators with available generating capacity in achieving its objective to sell the output from the coal-fired facilities.

Furthermore, if capacity prices increase and projections indicate a likely further increase in the future, additional new generation will enter the MISO market in response to these price signals, and Big Rivers will see additional competition to sell output from its units, making it increasingly difficult to justify the continued operation of both of these units.

3. Power Sales into PJM

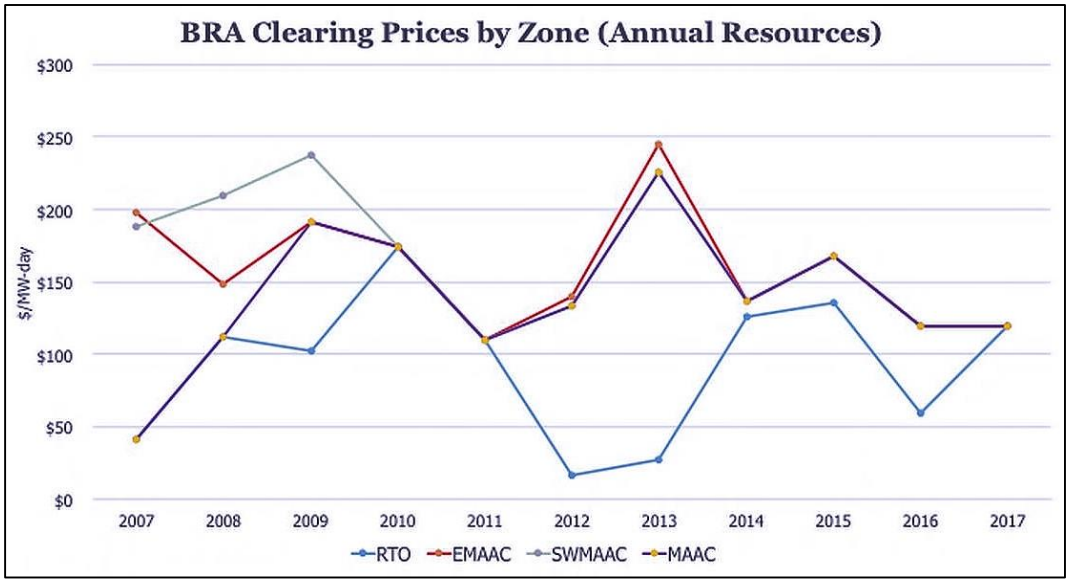
FINDING 15: THE POTENTIAL TO SELL CAPACITY AND ENERGY INTO PJM IS A COMPLICATED AND COSTLY MITIGATION OPTION THAT HAS A MUCH LONGER TIME HORIZON THAN IS REALISTIC AT THIS POINT IN THE IMPLEMENTATION OF THE MITIGATION PLAN.

While the Big Rivers units cannot currently sell its output in the PJM market, it is possible to build the transmission necessary to create the option to deliver this generation into the PJM market. Big Rivers would need to do an in-depth analysis of the expected energy and capacity prices in PJM to assess the costs and benefits of exercising this option, recognizing the capacity import limits that have recently been imposed by PJM on imports coming into PJM from the MISO region.

If this transmission were successfully built, the generation from the Big Rivers units would be delivered into PJM West, where energy and capacity prices are lower that the eastern part of the region. The 2017/2018 base residual auction resulted in annual resources clearing at $120/MW-day, or $3.65/kW-month, in most of PJM following rule changes that limited demand response and generation imports. Clearing prices in the eastern region of PJM were essentially flat, with the PSEG zone falling to $215/MW-day, or $6.54/kW-month. The auction procured 167,004 MW for the delivery year beginning June 1, 2017, giving the PJM a 19.7% reserve margin. In total, more than 5,900 MW of new entry cleared.

It is important to note that capacity prices in PJM have shown significant volatility since they were first established, as shown in Figure 14 below. This volatility would necessarily need to be factored into Big Rivers' analysis of power sales into PJM.

FIGURE 14: PJM HISTORIC CAPACITY PRICES[69]



Alternatively, Big Rivers could choose to become a member of the PJM Interconnection and permanently leave the MISO. This would involve a study of the costs of PJM membership and potential market revenues versus MISO costs and revenues, MISO notice provisions and exit fees, cost to interconnect with PJM, cost of interconnection reliability impacts on PJM, and the net present value of benefits to the member cooperatives and their customers. The investigation of this option would likely be a long undertaking. For example, Entergy spent almost three years investigating leaving its system agreement, pursuant to which there was an eight-year notice period, and moving into the MISO footprint. In addition, it took several years for the FERC and the local state commission to approve the transaction. Any move by Big Rivers to leave MISO and join PJM would likely take six to eight years to implement, assuming there are quantifiable benefits to leaving the MISO system. This is clearly a mitigation option to the loss of the smelter load that is highly uncertain, and has a much longer time horizon than is realistic at this point in the implementation of the Mitigation Plan.

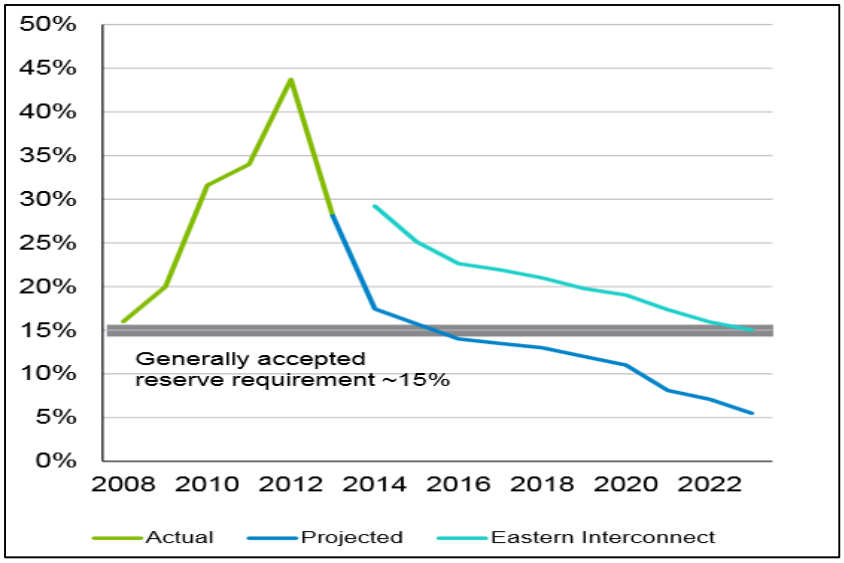
4. Expected Market Need for Energy and Capacity

FINDING 16: SIGNIFICANT MARKET UNCERTAINTY AROUND ENVIRONMENTAL REGULATIONS AND PROJECTED CAPACITY SHORTAGES WOULD MAKE A STRATEGY TO SELL ALL EXCESS CAPACITY IN THE MARKET RISKY AND ITS SUCCESS UNLIKELY.

With more than 8,000 megawatts of expected retirements due to tightening environmental regulations, MISO is projecting tightening reserve margins in the future. As shown in Figure 15, the MISO region is expected to fall below its reserve margin by 2016 with a 5% reserve margin by 2022.

[69] PJM Interconnection.

FIGURE 15: PROJECTED RESERVE MARGINS IN MISO[70]

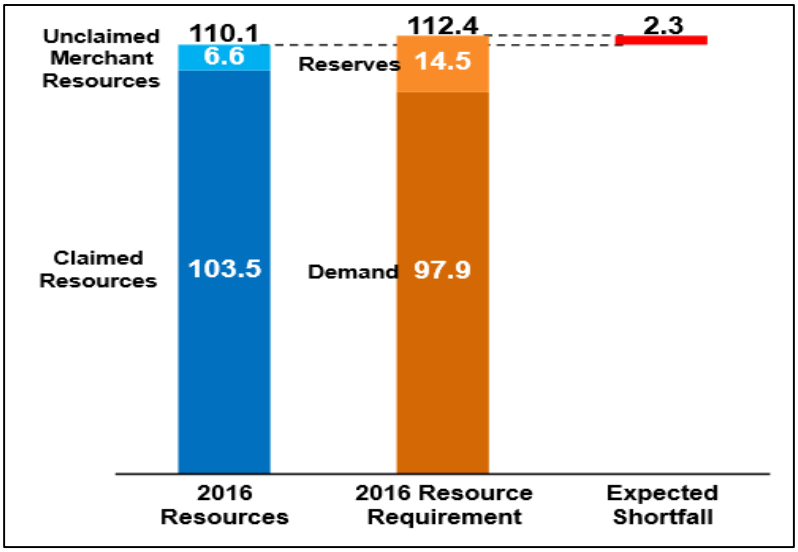


The Environmental Protection Agency's ("EPA") Mercury and Air Toxics Standards ("MATS"), CSAPR, Coal Combustion Residuals ("CCR") and cooling water regulations ("316B") will require compliance by a majority of coal-fired facilities over the next three to five years. These regulations will affect Big Rivers' generating facilities. In terms of MATS compliance, Coleman will require the installation of a dry sorbent injection ("DSI") and activated carbon injection ("ACI") system. For compliance with CSAPR, Phase 1 became effective on January 1, 2015. Further SO2 reductions under CSAPR could require the installation of a flue gas desulphurization system ("FGD") at Wilson, lower sulfur fuel, conversion to natural gas, and/or reduced generation levels. Additional NOx reductions at Green and Coleman will likely be necessary if Coleman returns to operation. In terms of 316B, Big Rivers is projecting little impact on the Wilson and Coleman units for compliance with these regulations. Big Rivers has and continues to evaluate the implications of the EPA proposed and existing regulations in its analysis of future options for Coleman and Wilson. It has also engaged Burns & McDonnell Engineering to perform an Environmental Master Plan Study. The intent of the study is to assist Big Rivers in developing a preliminary plan for complying with new and future environmental regulations, including but not limited to the final CCR and Section 316(b) regulations, CSAPR, the National Ambient Air Quality Standards ("NAAQS"), the proposed Effluent Limit Guidelines ("ELG"), and proposed ozone NAAQS, as well as any estimates of compliance costs that may be required.

MISO is projecting these retirements to erode current reserve margins and increase reliability risk. In fact, MISO is projecting in excess of a 2,300 MW deficit in generation by 2016 in the North and Central regions alone, as shown in Figure 16 below.

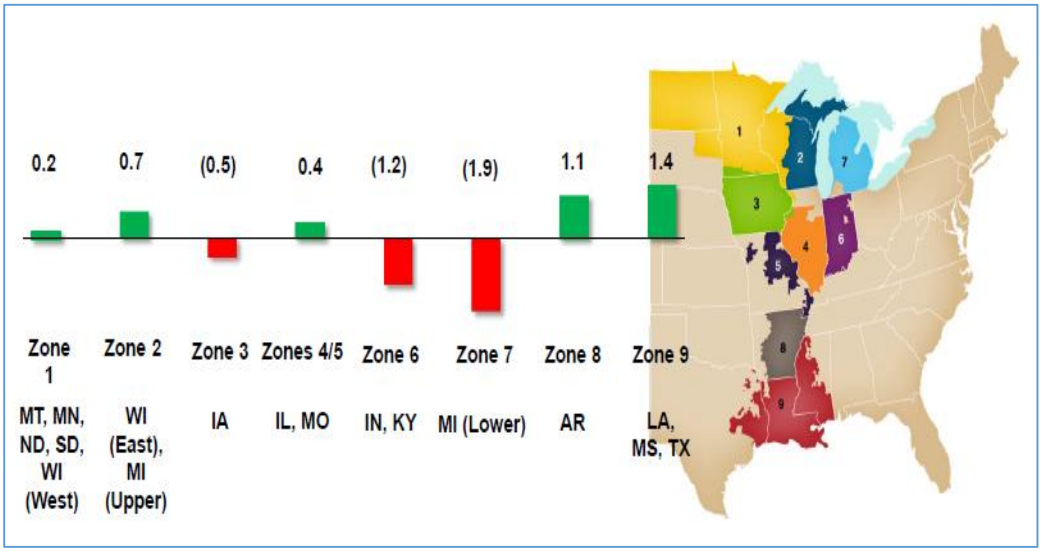
[70] Historical NERC Summer Reliability Assessments, projections from MISO and NERC 2013 Long Term Reliability Assessments.

FIGURE 16: MISO PROJECTED SHORTFALL IN NORTH AND CENTRAL REGIONS (GW)[71]



In terms of Zone 6 projected capacity specifically, where Big Rivers' facilities are located, MISO is projecting 1,200 MW of capacity deficiency in 2016, as shown in Figure 17 below.

FIGURE 17: PROJECTED CAPACITY SHORTAGE BY ZONE IN 2016 (GW)[72]



While there is projected need for capacity, as stated above, it is reasonable to assume that this shortage will not persist. New generation, likely in the form of gas-fired and wind generation, will respond to this market signal and place additional economic pressure on Big Rivers' coal-fired units,

71 MISO Quadrennial Review, September 2014.
72 MISO Update on Capacity Survey Results FERC Meeting, September 2014.

particularly the Coleman facility, and make it more difficult to sell the output from this facility in the future.

In addition to these economic pressures, there is significant market uncertainty, particularly for coal units like Coleman and Wilson around the CPP. Under the draft version of the CPP, Kentucky was required to reduce carbon emissions by 15 percent from 2012 levels by 2020 and a total of 18% by 2030. A final version of the CPP was released by the EPA on August 3, 2015, and calls for a 16% reduction by 2022 and a 30% reduction by 2030.

Each state will be required to submit a plan showing how it will reach its specified goals by September of 2016. Kentucky is among more than a dozen states that have consistently opposed federal efforts to impose environmental rules on the state's power plants. Kentucky was the first state in the country to pass a law restricting what its environmental agency can include in a state plan to the EPA. Specifically, lawmakers in Kentucky have passed a bill to exempt the state from submitting a plan to meet the proposed air regulations that work against coal. In addition, Kentucky has joined other states in suing the EPA over the rule.

If Kentucky does not submit a plan––or submits one that does not pass muster––the EPA will create one for the state. Since the EPA likely doesn't have the authority to force a state to expand its renewable energy production or impose energy efficiency measures, it would presumably target emissions from coal plants. Kentucky's Energy and Environment Cabinet hopes to avoid having EPA impose an implementation plan for curbing carbon dioxide emissions with a strategy that relies on retirements of coal-fired power plants, including Coleman, that were already planned for the next 15 years. It is unclear, with the more stringent reduction requirements under the final CPP, whether those plant shutdowns could generate enough emission reductions to allow Kentucky to meet its 2030 EPA target. The role of Big Rivers' generating facilities in meeting the CPP state-wide reduction targets remains uncertain.

In terms of the potential for short-term market sales from Wilson and Coleman, Big Rivers has used a combination of forecasts from ACES and Wood Mackenzie for energy price forecasts. MISO produces a base case hourly forecast of LMPs for a five, ten, and fifteen-year period based on a set of assumptions vetted through MISO's Planning Advisory Committee. MISO forecasts for the Indiana Hub are $43.06/MWh in 2018, $53.34/MWh in 2023 and $67.44/MWh in 2030. In 2015 dollars, the forecasted prices are $40.22/MWh in 2018, $44.47/MWh in 2023, and $50.18/MWh in 2028. Based on Wilson's variable cost of production, it appears that there is some opportunity to profitably sell output from Wilson into the MISO wholesale spot market when factoring in delivery costs and other MISO-related costs. The higher cost of the Coleman units makes them more challenged in the wholesale market.

While Big Rivers continues to seek opportunities to sell its excess capacity under bilateral contracts, it is reasonable to assume that some amount of this excess capacity will continue to be sold into the MISO wholesale market. This is an inherently risky long-term strategy. This risk will be borne by the member cooperatives, and ultimately, their customers. Big Rivers does not intend to indefinitely maintain large volumes of uncontracted capacity, and is not positioned to leverage all of the tools necessary to mitigate price and deliverability risks in the marketplace, even though it has taken steps

to develop this expertise in-house and works with ACES to supplement this expertise, based on information provided by Big Rivers. Forecasts, whether developed internally or provided by a third party, are inherently inaccurate, and there is as much risk that prices in MISO will be lower than predicted as there is that prices will be higher than predicted. Furthermore, as discussed above, the increasing role of more efficient and less costly gas-fired generation could further reduce expected margins for coal-fired generation.

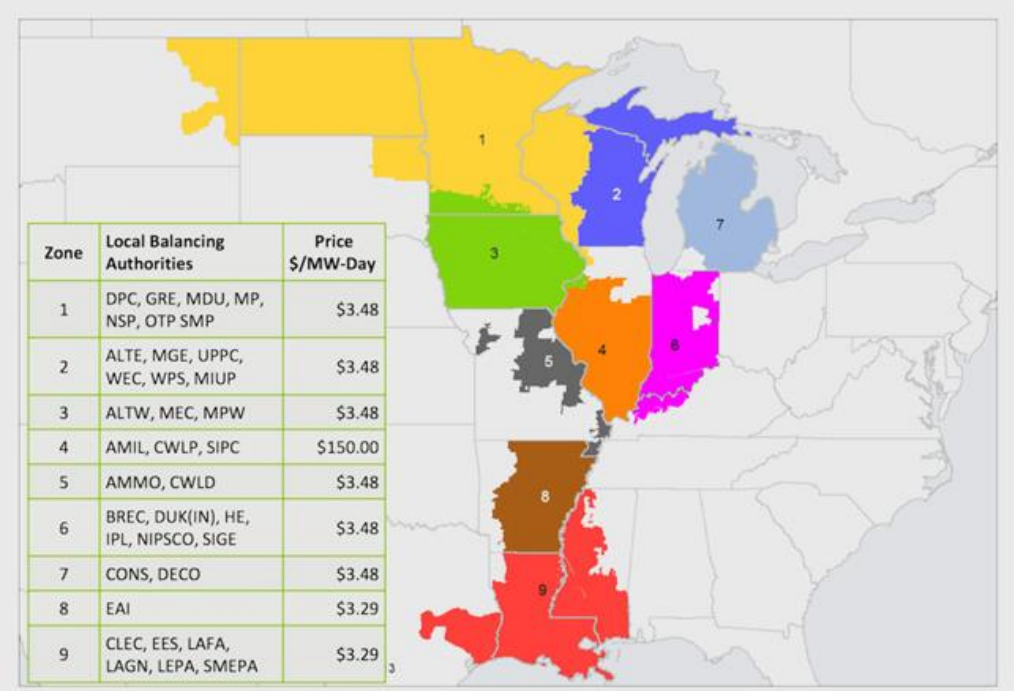
Finally, while MISO is projecting a capacity shortage region-wide and in Zone 6, there are independent power producers that have excess generation output to sell on a short-term and long-term basis. Dynegy has over 4,000 MW of generation available to sell in the MISO footprint. Much of this generation is coal-fired generation with profiles similar to the Wilson and Coleman units. In addition, Dynegy is a merchant generator who is in the business of using sophisticated modeling, market analysis, and risk management tools to sell its output as a normal course of business. Merchant generators represent strong competition for Big Rivers in selling their excess capacity. In order to position Big Rivers to be competitive with these entities, the company would have to develop significant in-house expertise and robust forecasting/analysis tools. Big Rivers has taken steps to bring modeling expertise in-house, and is making progress in terms of market knowledge and expertise. However, the efforts necessary to support a long-term commitment to competing with merchant generators to sell uncontracted capacity has the potential to distract Big Rivers from its stated mission.

5. Development of a Capacity Market

FINDING 17: BIG RIVERS' PROJECTED VALUE OF THE OUTPUT FROM THE COLEMAN AND WILSON STATIONS IS OVERSTATED BASED LARGELY ON PROJECTED CAPACITY PRICES.

Big Rivers currently sells capacity from Wilson that is not already under contract into the MISO capacity market. The historic capacity revenues from these sales have been minimal due to low capacity clearing prices. However, Big Rivers hedged 2015/2016 sales with bilateral arrangements that will net significant margins. MISO has recently made significant changes to its capacity market construct, however, to send price signals to the market that encourage new construction, simplify delivery within defined zones, manage reserve margins, and enable demand response to compete with generation. MISO has replaced the historic monthly auction design with a voluntary annual auction. Under this construct, the MISO footprint is divided into nine load zones, as shown in Figure 18 below, with Big Rivers located in Zone 6.

FIGURE 18: MISO LOCAL RESOURCE ZONES[73]



Zone	Local Balancing Authorities	Price $/MW-Day
1	DPC, GRE, MDU, MP, NSP, OTP SMP	$3.48
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	$3.48
3	ALTW, MEC, MPW	$3.48
4	AMIL, CWLP, SIPC	$150.00
5	AMMO, CWLD	$3.48
6	BREC, DUK(IN), HE, IPL, NIPSCO, SIGE	$3.48
7	CONS, DECO	$3.48
8	EAI	$3.29
9	CLEC, EES, LAFA, LAGN, LEPA, SMEPA	$3.29

MISO conducts an annual auction for each zone in March of each year to address regional and local needs for the following Delivery Year. Resources can be offered in the auction at any price, but only those that clear the market will be paid. All resources necessary to meet the total coincident peak, plus reserves, for the zone and have "cleared the market" will receive the offer price of the last resource needed. This is the market clearing price.

In terms of recent auction results, the system-wide clearing price for the 2013-2014 planning year was $1.05 per megawatt-day ("MW-day") or $0.032/kW-month. This result was reflective of the region's ample supply of generation and demand response resources at the time. The results from the 2014/2015 auction revealed a clearing of larger volumes of planning resources at higher prices. The 2014/2015 auction had three different clearing prices ranging from $3.29/MW-day - $16.75/MW-day, or $0.10-$0.50/kW-month. The recently released auction results for the 2015/2016 auction showed a $3.48/MW-day price for zones 1-3 and 5-7, $150 per MW-day for Zone 4, and $3.29/MW-day for Zones 8-9.

It is interesting to note the disparity in clearing prices across the MISO footprint. The price separation reflects a distinction between regulated markets and Illinois, which is a deregulated market and depends on price signals set by the capacity auction to attract new entry and set price. This price, or bid cap, is the opportunity cost of selling into the PJM market, which had a region-wide clearing price for the 2015/2016 auction of $136/MW-day. With prices clearing for the RTO region of PJM for the

[73] RTO Insider.

2016/2017 auction at $59/MW-day, prices in the MISO 2016/2017 auction in Zone 4 will be defined by the PJM clearing price for that auction.

Recent industry projections reflect an expectation that regional supply shortages will loosen as new gas units come online.[74] In addition, ongoing transmission upgrades contemplated within MISO's Multi-Value Projects ("MVP") are expected to further integrate some existing export-constrained zones within the MISO footprint. Specifically, greater interconnectivity between MISO-North and MISO-South (Entergy) is anticipated in future auctions, which have historically limited the north-south intertie, pending resolution between MISO and the Southwest Power Pool on rules around leveraging their network. This will eventually allow more generation to compete for the ability to serve load in the MISO footprint.

It is important to note that there has been significant pressure in MISO among participants to establish a capacity market similar to the PJM capacity market, which has historically traded at a premium to MISO. This has created an arbitrage incentive for MISO resources to export their capacity into the PJM footprint. However, PJM recently implemented Capacity Import Limits ("CIL") in its most recent 2017/2018 capacity auction to address significant import volumes coming into the PJM footprint, the majority of which are from MISO.

Dynegy has been the most vocal about the establishment of a MISO capacity market similar in design to PJM's Reliability Pricing Model ("RPM"). It remains uncertain if a capacity market will be established. Big Rivers can only rely on the capacity market as it is currently designed today, and the projected value of its generation facilities under the current construct.

B. Gas Conversion of Coleman

FINDING 18: A CONVERSION OF THE COLEMAN FACILITY TO GAS WOULD RESULT IN A LESS COMPETITIVE GENERATING FACILITY RELATIVE TO NEWER GAS-FIRED PLANTS AND WOULD BE A SIGNIFICANT DEPARTURE FROM BIG RIVERS' CURRENT MISSION TO SERVE MEMBER LOAD.

Big Rivers has conducted a high-level feasibility study of the conversion of Coleman station from a coal burning facility to a natural gas-fired facility. A preliminary estimate of a single unit conversion would be approximately [redacted], and a conversion of the entire station would range from approximately [redacted] to [redacted].[75]

In order to finalize its feasibility study, Big Rivers would need to hire an engineering firm to complete the modeling to determine any impacts such as boiler modifications, boiler design and capacity, and heat rate due to the fuel switch. Big Rivers has had informal discussions with the current gas supplier, Atmos Energy, about gas supply at Coleman. The existing four-inch gas supply line has a maximum capacity of 300-400 MCF/hr. Atmos Energy believes there is adequate gas available to supply one Coleman unit if a larger supply pipe is installed due to two major gas suppliers being located within

[74] UBS Report, April 22, 2015.
[75] Big Rivers Coleman Summary - Natural Gas Conversion Cost CFL.

one mile from Coleman Station. A gas study would need to be performed to determine if supply is adequate to convert all three Coleman units to natural gas.

Forecasted gas prices, as contained in the gas conversion study, are expected to increase only modestly through 2028, as shown in Figure 19 below.

FIGURE 19: FORECAST GAS PRICE IN COLEMAN GAS CONVERSION STUDY[76]

With gas-fired units expected to set price in more hours in the future, Coleman units fired on gas would compete with other new combined cycle gas units entering the market. The gas conversion study shows an expected heat rate of [redacted] and a capacity factor of [redacted] for the Coleman units. A state-of-the-art combined cycle unit has a heat rate of about 6,500-7,000 Btu/kWh.[77] If the Coleman Station is converted to gas, these units would be advantaged in the market only to the extent that they are more efficient than the marginal unit. With the heat rate projected in the gas conversion study, it would be difficult as a newly converted unit to compete in the MISO marketplace, and increasingly difficult as newer and more efficient gas units enter the market and displace less efficient generation.

While a converted gas-fired Coleman unit would be challenged in the competitive marketplace, a more important consideration for Big Rivers in deciding whether to proceed any further with a study of a conversion of the Coleman unit(s) is whether this strategy is consistent with its core mission. Coleman output is not needed to serve existing member load, and converting Coleman to gas for reasons other than serving new load would be a significant departure from Big Rivers' mission. Big Rivers is an organization that is in the business of serving its member cooperatives. It is not in the business of owning uncontracted generating capacity in excess of what is needed to serve member load, and is not currently positioned to consistently and successfully market excess capacity as an

[76] Ibid.
[77] www.pjm.com

addition to its core mission. The market risk involved is significant, and this risk would ultimately be borne by member cooperatives. The risk exposure for Big Rivers' members, and its ability to compete long term with merchant generators, should give Big Rivers pause to consider how best to pursue reduction of its excess capacity while continuing its focus on its core business of serving member load going forward.

C. Attract New Load/Expand Existing Load

FINDING 19: WE ENCOURAGE BIG RIVERS TO CONTINUE PURSUING INCREASED SALES TO EXISTING LOAD AND NEW LOAD. HOWEVER, IT IS UNLIKELY THAT BIG RIVERS' WILL ELIMINATE ITS EXCESS CAPACITY THROUGH GROWTH IN NEW LOAD.

Over the two to three years since the Mitigation Plan was implemented, Big Rivers has achieved an expansion in load served of approximately [redacted] through an expansion at the Aleris facility and organic commercial load growth. While Big Rivers has additional opportunities to serve incremental load either within its service territory or outside of its existing footprint, the likelihood of adding load in an amount to close the excess capacity gap left by the loss of the smelter load is relatively small.

According to the Kentucky Economic Outlook published by JP Morgan Chase in June 2014, the Kentucky economy appears to be on the mend and is forecasted to rise steadily in the years ahead. The past three years of weak performance have partly been due to the sluggishness of the national economic recovery. Persistently high unemployment and stagnant wages have been holding back Kentucky's recovery. In November 2013, Kentucky still had 29,700 fewer jobs than it had before the recession hit in December 2007. To return to pre-recession employment levels, Kentucky needs to add those jobs plus 62,400 more to account for population growth.[78] That means Kentucky would need to add 2,000 jobs per month over the next three years to get back to pre-recession unemployment rates—but net job growth in the state has been flat over the last year. Kentucky is forecast to grow a little more slowly than the national economy this year and the next.[79]

In terms of GDP, Kentucky has made a modest recovery since 2014, as shown in Figure 20 below.

[78] Reinvestment or Retrenchment? A Preview of the 2014-2016 Kentucky State Budget, January 2014, pg. 12.
[79] Kentucky Economic Outlook JP Morgan Chase, June 3, 2014, pg. 2.

FIGURE 20: KENTUCKY GDP[80]

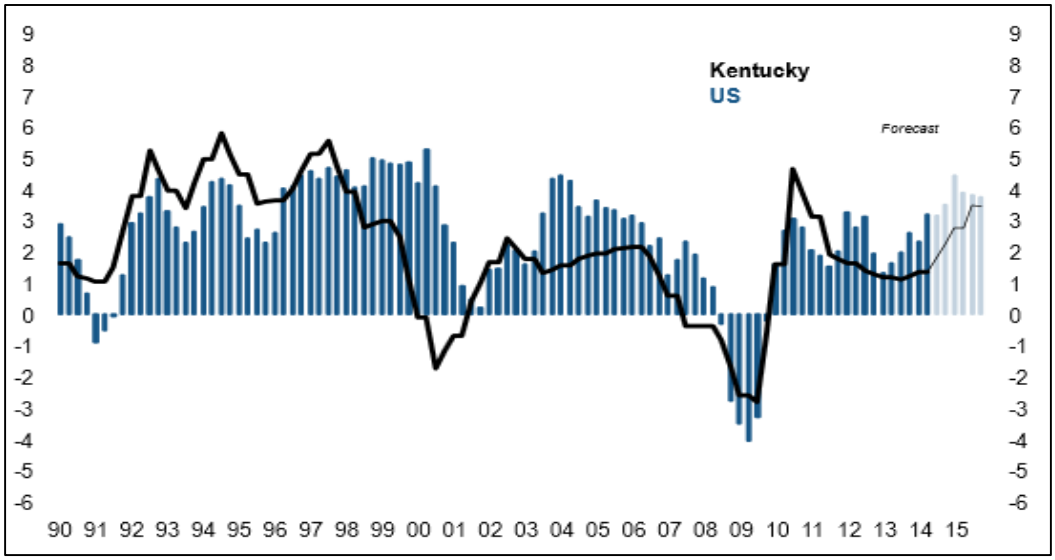
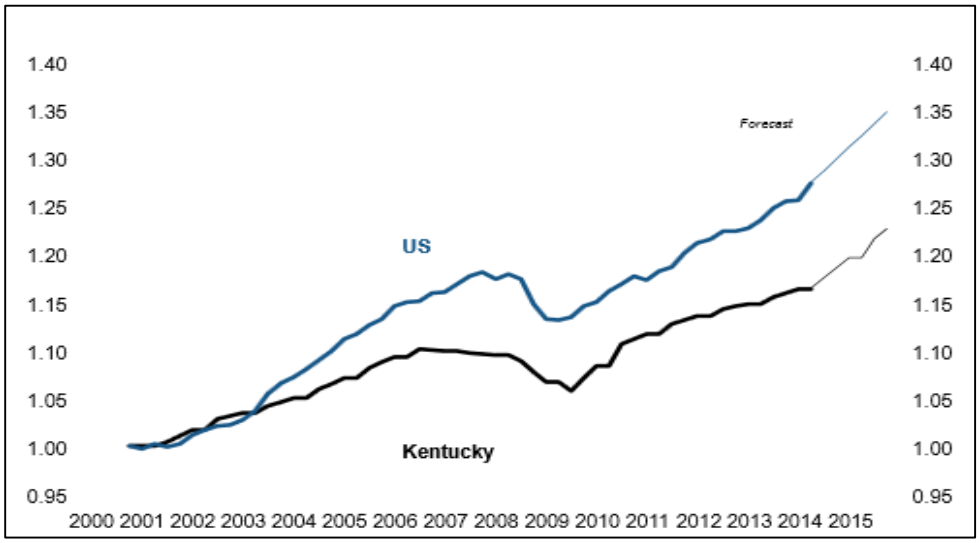


Figure 21 illustrates the evolution of real GDP of the State and the overall US economy since the fourth quarter of 2000. Kentucky lagged the national economy for most of the past decade, but the recession was not as harsh for the State as it was for the overall economy and the State's output is tracking the national economy. Kentucky's economy appears to be on the mend and is forecast to rise steadily in the years ahead.

FIGURE 21: REAL GDP RATIO LEVEL (RATIO TO 2000 Q4)[81]



80 Ibid., pg. 8.
81 Ibid., pg. 9.

In addition, in its most recent Integrated Resource Plan, Big Rivers is projecting load growth and peak demand growth of approximately 2.3% year over year through 2028.

The Kentucky economy is expected to steadily recover over the next few years, and a 2.3% projected growth in organic load appears to be realistic. Big Rivers is also projecting that replacement load enters the forecast in 2016 at 103 MW at 75% load factor and increases to 827 MW (including losses) at the same load factor by 2021.[82] Considering the time involved in replacing load, and the 200MW of replacement load achieved over the past 30 months, it appears that these estimates are optimistic. Concentric recognizes the efforts that Big Rivers has made in attempting to mitigate the loss of the smelter load through activities involved in the growth of native load as well as growth in the amount of replacement load. However, even with these efforts, it is unlikely that Big Rivers will attract new load equal to the current level of excess generation of approximately 850 MW in the next six years.

D. Mothballing of Existing Generation

FINDING 20: BIG RIVERS SHOULD CONTINUE TO MOTHBALL, OR IDLE, COLEMAN AND MAINTAIN OPTIONALITY FOR WILSON AT THIS TIME.

Big Rivers originally proposed to idle the Wilson and Coleman facilities consistent with the Mitigation Plan as part of its rate case under Docket No. 2013-00199. Ultimately, Big Rivers was able to sell a portion of the output from the Wilson facility under a bilateral contract through [redacted] and has sold [redacted] through [redacted] giving Big Rivers some latitude to address next steps with the Wilson facility.

Big Rivers submitted its plan to idle the Coleman Station in accordance with MISO tariff requirements to ensure that the idling of the facility would not have an adverse impact on system reliability. As a result, MISO designated Coleman Station as an SSR and placed it on must-run status, pending the installation of capacitors and protective relays at the Century Hawesville facility to allow it to safely withstand some level of interruption to its power supply. The installation of the equipment at the Hawesville facility was completed and Coleman Station was idled in May 2014.

According to Section 38.2.7 in MISO's Open Access Transmission Tariff ("Tariff"), a Market Participant seeking to mothball a generating unit must provide at least twenty-six weeks' notice prior to taking such action. If the unit is not needed for reliability, the unit will be allowed to be placed into mothball status.

If a Market Participant seeks to return the unit to service from either a retirement or suspension (i.e., returns from retirement or to service prematurely, including a generating unit that was a former SSR unit that no longer operates pursuant to an SSR Agreement), the owner or operator of the generating unit will be allocated the total costs of Network Upgrades incurred or committed to as of the date of the notification of modification of the decision to retire or suspend.

[82] Big Rivers 2014 Integrated Resource Plan, pg. 38.

In addition, a Market Participant owning or operating a generation unit can request a suspension of operation for a maximum of 36 cumulative months during any five (5) year period. A Market Participant owning or operating a generating unit that had been granted a suspension pursuant to an Attachment Y Notice for less than thirty-six (36) cumulative months may request an extension to such time limits by submitting a new Attachment Y Notice twenty-six (26) weeks prior to the end of the originally granted period.

Coleman has already been idled for almost twelve months, and has twenty-four months remaining before Big Rivers will be required to either retire the unit or return the unit to service in order to avoid the loss of its interconnection and the risk of incurring the cost of network upgrades to re-establish its interconnection. A return to service would likely require capital investments for environmental compliance of $70 million or more, pending further analysis by Big Rivers. The retirement of Coleman would result in the reduction of Bondable Property discussed above under Section VII.E.

In terms of Wilson, the unit continues to be profitable in the marketplace, and there is optionality with this unit that supports its continued operation for the foreseeable future until compliance with environmental mandates is required. Big Rivers' environmental compliance plan was approved by the Commission in Case No. 2007-00460, ("the 2007 Plan") and consisted of programs and associated costs to comply with sulfur dioxide ("SO2"), nitrogen oxide ("NOx"), and sulfur trioxide ('S03"). In an October 1, 2012 Order issued by the Commission in Case No. 2012-00063 ("the 2012 Plan"), the Commission approved certain additions to the 2007 Plan relating to the Mercury and Air Toxics Standards ("MATS") rule. The additions to the 2012 Plan involved installing activated carbon injection and dry sorbent injection systems and emission control monitors at Big Rivers' Coleman, Wilson, and Green generating stations. Big Rivers has conducted testing to determine if operational changes at Wilson would be sufficient to achieve MATS compliance without installing additional equipment. Big Rivers determined that it can comply with all emission standards of the MATS rule by utilizing dry sorbent injection only. Big Rivers has received extensions to April 16, 2016 for MATS compliance from the Kentucky Division of Air Quality for the Green, Reid and Wilson stations. Furthermore, Big Rivers has determined that Wilson can operate for an additional four to six years while maintaining a positive balance of SO2 CSAPR allowances. Big Rivers would have the options of purchasing additional allowances, reducing sulfur levels in the fuel, or reducing generation levels before installing environmental compliance equipment on Wilson. Big Rivers has hired an engineering firm to conduct an updated environmental compliance study to determine an estimated future cost of compliance.

E. Sale of Existing Generation

FINDING 21: BIG RIVERS SHOULD IDENTIFY AND EXPLORE ALTERNATIVES WHICH MAY ALLOW FOR A SALE OF ONE OR BOTH GENERATING PLANTS AT LESS THAN BOOK VALUE, COMMENCE A STUDY ON THE OPTIONS AVAILABLE FOR THE COLEMAN FACILITY, MAINTAIN THE OPTIONALITY OF WILSON, AND REVISIT STRATEGIC OPTIONS FOR THE FACILITY IN THE NEXT TWO TO THREE YEARS.

Another option available to Big Rivers to mitigate the loss of the smelter load identified in the Mitigation Plan is to pursue the sale of the Coleman and/or Wilson generating facilities. As noted

earlier in this report, Big Rivers has given this option some limited consideration. Concentric believes it warrants a more rigorous review now.

As noted earlier in this report, Big Rivers has an existing mortgage indenture and loan agreements with the Rural Utilities Service, CoBank ABC, the National Rural Utilities Cooperative Finance Corporation, and other banks that constrain a sale of either facility. As discussed above under Section VII.E, a sale at less than the 2008 net book value plus cost of additions since 2008 could result in a reduction of Bondable Property. Bondable Property or retired debt is required as a basis for future debt issued under the Indenture. The net book value of Coleman and Wilson as of July 31, 2013 was $187 million for Coleman and $454 million for Wilson.[83]

In addition, the mortgage indenture and loan agreements with the Rural Utilities Service, CoBank ACB, the National Rural Utilities Cooperative Finance Corporation, and other banks, contain requirements that Big Rivers establish and collect rates for the use or the sale of the output, capacity or service which are reasonably expected to yield margins for interest equal to at least 1.10 times total interest charges on debt secured under the Mortgage Indenture, known as the Margins for Interest Ratio ("MFIR"). The MFIR is calculated by dividing the margins for interest for a period by the Interest Charges for such period. Under the Indenture definition of Margins for Interest, the sale of Coleman or Wilson at a loss will not be taken into account in computing Margins for Interest.

Finally, one of Big Rivers' credit agreements requires Big Rivers to maintain a minimum equity of $375,000,000 escalating for periods after 2014. A sale at less than net book value could impact the ability to comply with this requirement.

The current market for coal-fired generating plants has yielded prices significantly below the net book value of either Coleman or Wilson. For example:

- In August 2013, Exelon Corp. sold three Maryland power plants — the 1980s-vintage Brandon Shores, a coal-fired plant, along with coal- and oil-fired units at the 1960s C.P. Crane plant and coal-, natural gas-, and oil-fired units at the 1960s H.A. Wagner plant — to Riverstone Holdings for an average of $177/kW.[84]

- In March 2013, Ameren sold five coal-fired power stations in Illinois to Dynegy - Joppa, dating to the 1950s; Coffeen and Edwards, from the 1960s and early 1970s; and Duck Creek and Newton, from the 1970s and 1980s. The transaction resulted in a sale price of $181/kW.[85]

- In March 2013, Dominion sold three power stations to Energy Capital Partners, including Brayton Point Power Station in Massachusetts, with three coal units and one fired by oil or natural gas, and the coal-fired Kincaid Power Station dating to the 1960s and located in Illinois. The average sale price for the coal units was $130/kW. Interestingly, Dominion

[83] Direct Testimony Frank Ackerman Case No. 2013-00199.
[84] Case No. 2013-00199 Direct Testimony of Fred Ackerman, pg. 24.
[85] Ibid.

recently had invested $1 billion in environmental controls at Brayton Point, but wrote off a large part of that investment.[86]

- In August 2012, Riverstone Holdings acquired 2,265 MW of super-critical coal capacity from Exelon for $400 million, or a cost of $176.60/kW.[87]

While it is beyond the scope of this report to develop a valuation of Coleman or Wilson or an assessment of the market for these plants, it is unlikely that a sale of either Coleman or Wilson could be executed at or above the net book value of either of these plants. Accordingly, any sale would require revisions to Big Rivers' mortgage indenture to prevent a sale from negatively impacting Bondable Property. The recovery of the difference between the net book value and sale price from Big Rivers' members would likewise need to be addressed as would other financing, earnings, equity, service and regulatory requirements.

Given that Coleman is not needed to serve member load, is idled, and is less competitive in the market, the options available for this plant are continued mothballing, decommissioning/retirement or sale. A sale is an option for Wilson, but given this plant's optionality, and its existing bilateral contract commitments, as discussed earlier, continued operation and selling into the MISO market is also viable for the near term.

A detailed study of the strategic options for Coleman, in particular, is warranted at this time. This would include discussion with lenders and regulators regarding modifications to the mortgage indenture allowing for a sale without adversely impacting Big Rivers' ability to issue secured debt in the future and addressing other financing, earnings, equity, service and regulatory requirements. This should also include a valuation of the facility and an assessment of that value in comparison to the value/cost of the plant pursuant to their other viable options such as decommissioning/retirement, leasing, and continued idling. The results of this study would greatly inform decision making regarding commencing a formal sales process.

F. Attracting New Members, Merger or Sale

FINDING 22: THE POTENTIAL TO ATTRACT NEW MEMBERS, MERGE WITH ANOTHER ELECTRIC COOPERATIVE OR BE ACQUIRED SHOULD BE MORE ACTIVELY CONSIDERED.

As noted earlier, the Mitigation Plan identified a number of other options which may be pursued to mitigate the loss of load including: i) attracting new members; ii) a merger with another electric cooperative; and iii) sale of Big Rivers to another cooperative or IOU. Big Rivers has given these options some limited consideration. Concentric believes it warrants a more rigorous review now.

The viability of any of these "corporate" transactions is dependent upon the value proposition for Big Rivers and the potential new member, merger candidate, or acquirer. This would involve the identification and examination of a host of issues and the potential benefits, risks, and value for Big

[86] Ibid.
[87] Megawatt Daily, February 2015

Rivers and the other counterparty. It would also involve consideration of Big Rivers' mortgage indentures, loan agreements and credit agreements. Ultimately, this decision would be up to the Big Rivers Board and its members.

G. Other Options

FINDING 23: FURTHER CONSIDERATION OF DEBT REFINANCING/RESTRUCTURING OPTIONS HAS BEEN PREMATURE UP TO THIS POINT IN THE MITIGATION PROCESS BUT BIG RIVERS SHOULD BEGIN DISCUSSIONS WITH THEIR LENDERS ON STRATEGY AND OPTIONS.

A debt refinancing/restructuring has been suggested by some interveners in Big Rivers' two most recent rate cases. In terms of financing activities, Big Rivers has engaged in several refinancing activities, including the following:[88]

- September 4, 2014 – Finalized term sheet and executed engagement letter with Cooperative Finance Corporation ("CFC") for up to $130 million secured revolving credit facility;
    - $30 million reserved for interim financing of 2012 Environmental Compliance Plan ("ECP") projects, to be repaid once long-term financing is secured;
    - Lenders: Syndicate of financial institutions arranged by CFC and agreed to by Big Rivers;
    - Purpose: Can be used for working capital, capital expenditures, other general corporate purposes, and the issuance of letters of credit $50 million available for issuance of Letter of Credits;
    - Maturity Date: 3 years from effective date.
- September 2014 – Updated the RUS loan application for long-term financing of 2012 ECP Projects, which was submitted on September 30, 2014. The updated application lowered the amount of funds being requested from $58.44 million to $25.93 million due to the removal of Coleman environmental compliance projects since the station is currently idled.

Because of the way prepayment premiums are calculated under the CFC and CoBank loans, it is likely that there would be a significant cost to refinance either of those obligations. That is also true for the amortizing RUS debt but there may or may not be an advantage in refinancing the non-interest bearing RUS note or effectively defeasing it through the use of the RUS "Cushion of Credit" program. This will depend upon the terms that can be achieved for refunding debt and may require amendments to the Indenture and other credit documents. The pollution control bonds cannot be called prior to July 15, 2020, but at that time a refinancing may be advantageous.

Effective with the close of the "Unwind" Transaction on July 16, 2009, all of Big Rivers' previously existing mortgages were permanently extinguished and replaced with Big Rivers' Mortgage

[88] Big Rivers Annual Meeting, September 18, 2014.

Indenture (the "Indenture"). The purpose of the Indenture is to secure all of the indebtedness of Big Rivers on equal footing among its existing senior secured creditors as well as future senior secured creditors. A principal feature of the Indenture is the use of a lien and security interest in favor of an institutional trustee (U.S. Bank National Association) rather than in favor of each individual creditor as mortgagee. The Indenture creates a lien and security interest on Big Rivers' real and personal property. Additional debt can be issued under the Indenture with Big Rivers' existing senior creditors without obtaining the existing senior creditors' approvals, subject to specified conditions.

As of April 2015, Big Rivers reported approximately $816 million of debt. Debt consists of Rural Utilities Service loans in the amount of $228 million, Ohio County bonds in the amount of $83 million, a $214 million loan with CoBank ACB, a CFC loan of $272 million, and a borrowing of $18.5 million for certain environmental upgrades.[89]

Big Rivers has taken steps to reduce its short-term obligations and improve its liquidity. In 2013, Big Rivers used a portion of its existing cash to repay a $58.8 million tax-exempt debt maturity which was scheduled for June 1, 2013.

The Indenture has several covenants that impact Big Rivers' ability to exercise options when dispersing or borrowing capital. For example, the Indenture prevents Big Rivers from paying back patronage capital to member cooperatives based on a margin to debt and equity ratio. In addition, the Indenture requires Big Rivers to establish and collect rates that are reasonably expected to yield an MFIR equal to at least 1.10 in each fiscal year. MFIR is defined as net margins plus interest expense on long-term debt plus income tax divided by interest expense on long-term debt. As noted above, failure to achieve the MFIR will result in the loss of the ability to borrow money on a secured basis. In addition, under one of Big Rivers' credit agreements, this interest rate will increase by an additional 2%, Big Rivers will lose the right to make further draws and it will lose the ability to obtain letters of credit.

Big Rivers should continue to take steps to understand the restrictions under the existing Indenture and to investigate what changes may be available in order to comprehensively explore its options. This includes an investigation of how stranded costs that would result from a sale at less than book value would affect Big Rivers' ability to meet MFIR requirements, and how a sale of an asset or assets would affect current Bondable Property under the Indenture and the need for bondable substitutions based on the value of such assets. Big Rivers should begin discussions with its other lenders to understand specific loan requirements and what modifications may be available to accommodate a sale of a generating asset or assets.

[89] Financial Forecast (2015-2028) 11-24-2014 CFL.xlsx

IX. RECOMMENDATIONS

Concentric provides the following recommendations based on the findings contained in this report. Further details regarding these recommendations, including specific improvements to be made and timelines for implementation are contained in the Action Plan prepared in concert with this report.

RECOMMENDATION 1: BASED ON FINDING 3, BIG RIVERS SHOULD CONSIDER ADDING A MEMBER WITH ENERGY EXPERTISE TO THE BOARD OF DIRECTORS.

Given the precipitous loss of load and the associated challenges currently facing the organization, it could be beneficial to have a voice on the Board of Directors that can bring insights to the table on how Big Rivers can best position itself to mitigate the loss of the smelter load. This will require a change in Big Rivers' existing bylaws to allow for an additional Board member, or to allow for a Board member that does not currently sit on the member cooperatives' Board of Directors. However, an individual with experience in merchant generation or energy finance would be a valuable addition to the Big Rivers Board of Directors.

RECOMMENDATION 2: BASED ON FINDING 8, BIG RIVERS SHOULD CONTINUE TO DEVELOP IN-HOUSE EXPERTISE IN TERMS OF PRICE FORECASTING AND MISO MARKET KNOWLEDGE TO DEVELOP MORE INFORMED PRICE FORECASTS, BUT ONLY TO THE DEGREE THAT IT SUPPORTS BIG RIVERS' MISSION AND CORE BUSINESS.

Projected retirements in MISO create some optionality for Big Rivers' excess generation, but merchant generators with excess generation will challenge Big Rivers in selling its output. The development of in-house expertise is important to developing more informed price forecasts in order to position Big Rivers to maximize its chances of success in selling its excess output now and in the future. Big Rivers has taken steps to bring modeling expertise in-house and to develop market knowledge and expertise. However, further efforts to grow this in-house capability is inconsistent with Big Rivers' core mission of providing low-cost and reliable power supply to its member cooperatives.

RECOMMENDATION 3: BASED ON FINDINGS 20 AND 21, BIG RIVERS SHOULD COMMENCE A STUDY ON THE SALE, RETIREMENT OR REDEVELOPMENT OF THE COLEMAN FACILITY, MAINTAIN THE OPTIONALITY AROUND WILSON AT THIS TIME AND REVISIT STRATEGIC OPTIONS FOR THE FACILITY IN THE NEXT TWO TO THREE YEARS.

A detailed study of the strategic options for Coleman, in particular, is warranted at this time. Given that Coleman is not needed to serve member load, is idled, is less competitive in the market, and its CSAPR allowances will be used to allow Wilson to stay in compliance, the options available for this plant are continued mothballing, decommissioning/retirement or sale. This study should include a valuation of the facility and an assessment of that value in comparison to the value/cost of the plant pursuant to their other viable options such as decommissioning/retirement, leasing, and continued idling. The results of this study would greatly inform decision making regarding commencing a

formal sales process. Wilson's operating efficiency and cost structure allow it to remain competitive in the market. While requirements for future environmental compliance are unclear at this time, Wilson can likely continue to operate for the next two to three years without investing in environmental upgrades. There is some interdependence between Wilson and Coleman in terms of environmental compliance, so greater clarity on the future of Coleman at this time will inform future strategic options for Wilson.

RECOMMENDATION 4: BASED ON FINDING 22, BIG RIVERS SHOULD CONTINUE TO PURSUE INCREASED SALES TO EXISTING AND NEW LOAD, INCLUDING NEW MEMBERS.

Big Rivers has made progress in attempting to mitigate the loss of the smelter load through activities involved in the growth of native load as well as growth in replacement load. Big Rivers should continue to vigorously pursue these opportunities to continue to decrease its level of excess generation, recognizing that it is unlikely to attract new load/members with a total demand in an amount equal to the current level of excess generation. The options around "corporate transactions" such as new membership or a merger will be member/company specific and is dependent on the value proposition for Big Rivers and the potential new member, merger candidate, or acquirer including benefits, risks and value for Big Rivers and potential counterparties.

RECOMMENDATION 5: BASED ON FINDING 23, BIG RIVERS SHOULD PURSUE DISCUSSIONS WITH LENDERS AND THE COMMISSION TO ADDRESS RESTRICTIONS AROUND THE SALE OF COLEMAN AND COMMENCE A STUDY ON THE STRATEGIC OPTIONS FOR THE FACILITY.

Discussions with Lenders and Regulators regarding modifications to the Mortgage Indenture may allow for a sale at less than book value and address stranded costs and other financing, earnings, MFIR, service and regulatory requirements. This would inform options and restrictions around a potential sale of Wilson in the future. A valuation and options study for the Coleman facility would greatly inform decision making regarding commencing a formal sales process or decommissioning of the facility.

APPENDIX A

GLOSSARY OF TERMS

ACES: Alliance for Cooperative Energy Services Power Marketing

ACI: Activated carbon injection system, an established commercial technology for reducing mercury emissions from coal-fired boiler flue gas

Century Hawesville: Century Aluminum of Kentucky General Partnership

Century Sebree: Century Aluminum Sebree LLC

CFC: Cooperative Finance Corporation, a member-owned, nonprofit cooperative organized in 1969 to raise funds from the capital markets to supplement the loan programs for electric cooperatives offered by the Rural Utilities Service

CIL Capacity Import Limits, places limits on the amount of capacity from external resources allowed to participate in the PJM capacity market

Commission: Kentucky Public Service Commission

CSAPR: Cross State Air Pollution Rule, developed by the United States Environmental Protection Agency and requires states to reduce power plant emissions that contribute to ozone and/or fine particle pollution in other states

DSI: Dry sorbent injection, used to control sulfur emissions

ECP: Environmental Compliance Plan, developed by Big Rivers to address environmental compliance mandates for their generation fleet

EDIR: Economic Development Incentive Rate, developed by Big Rivers to attract new load to its member cooperative service territories

EKPC: East Kentucky Power Cooperative

EPA: Environmental Protection Agency

ER: Economic Reserve, a reserve account used to mitigate fuel, environmental, and rate increases to Big Rivers' member cooperatives developed as part of the Member Rate Stability Mechanism

FERC: Federal Energy Regulatory Commission

FGD: flue gas desulphurization system, a set of technologies used to remove sulfur dioxide (SO2) from exhaust flue gas of fossil-fuel power plants

FRAP: Fixed Resource Adequacy Plan, allows load serving entities to demonstrate their compliance with capacity requirements and opt out of the yearly auction

FTRs: financial transmission rights, financial instruments used to hedge the costs associated with congestion

G&T: generation and transmission cooperative

IBEW: International Brotherhood of Electrical Workers

Jackson Purchase: Jackson Purchase Energy Corporation, a member of Big Rivers

Kenergy: Kenergy Corp., a member of Big Rivers

KIUC: Kentucky Industrial Utility Customers, Inc.

LMP: locational marginal price, used to establish the price of energy in MISO

LSEs: load serving entities, entities that serve customer load in MISO

MAAP: Management Audit Action Plan, a plan to be developed by the auditing entity in addition to the Audit Report describing the specific actions and timelines required to address recommendations contained in the Audit Report

MATS: Mercury and Air Toxics Standards, developed by the United States Environmental Protection Agency and places federal limits on mercury and other hazardous air pollutants from fossil plants

Meade County: Meade County Rural Electric Cooperative Corporation

MFIR: Margins for Interest Ratio (Net Margins + Interest Expense on Long-Term Debt + Income Tax) / Interest Expense on Long-Term Debt

MISO: Midcontinent Independent System Operator

Mitigation Plan: Load Concentration Analysis and Mitigation Plan, developed by Big Rivers in response to the loss of the smelter load

MRSM: Member Rate Stability Mechanism, created at the time of the Unwind Transaction to mitigate the impact of increases in fuel and environmental costs to the member cooperative customers

MVP: Multi-Value Projects, a category of transmission projects in MISO where the cost of the project is spread across the region to enable the delivery of energy in support of energy policy mandates, such as renewable portfolio standards; or address regional reliability and/or economic issues.

NOx: Nitrogen oxide

NPVRR: Net present value revenue requirements

PPA: Power purchase agreement

PRA: Annual Planning Resource Auction, the capacity construct currently used to buy and sell capacity in MISO

RER: Rural Economic Reserve, created at the time of the Unwind Transaction to mitigate the impact of increases in fuel and environmental costs to the member cooperatives' rural customers

RPM: Reliability Pricing Model, the capacity construct used to buy and sell capacity in PJM

Smelter Legislative Caucus: a group of Kentucky legislators representing districts affected by the potential loss of the Century smelters

SO2: Sulfur dioxide pollutant produced in the burning of fossil fuels

S03: Sulfur trioxide pollutant produced in the burning of fossil fuels

SSR: System Support Resource, a power plant that must be available to operate for MISO to ensure electric system reliability. The SSR designation is a temporary, last resort measure requiring the electric generating unit(s) to keep operating until an alternative is identified.

Tariff: MISO's Open Access Transmission Tariff

TIER: Times Interest Earned Ratio defined as (Net Margins + Interest Expense on Long Term Debt)/Interest Expense on Long-Term Debt

Transaction Agreements: A series of contracts agreed upon by Big Rivers and Century that reduced the smelters' energy costs by purchasing power directly from the wholesale power market with Big Rivers acting as Century's Market Participant in MISO. The energy would continue to be delivered to the facilities by Kenergy.

VCA: Voluntary Capacity Auction, the capacity construct that was previously used to buy and sell capacity in MISO

316B: Federal Water regulations under Section 316(b) of the Clean Water Act establishing requirements for cooling water intake structures at existing generating facilities.

ZRCs: Zonal resource credits, used to credit entities for owning resources that count towards MISO resource adequacy requirements